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A THESIS

in

The Graduate Program in Historic Preservation

Presented to the faculties of the University of Pennsylvania in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

1988

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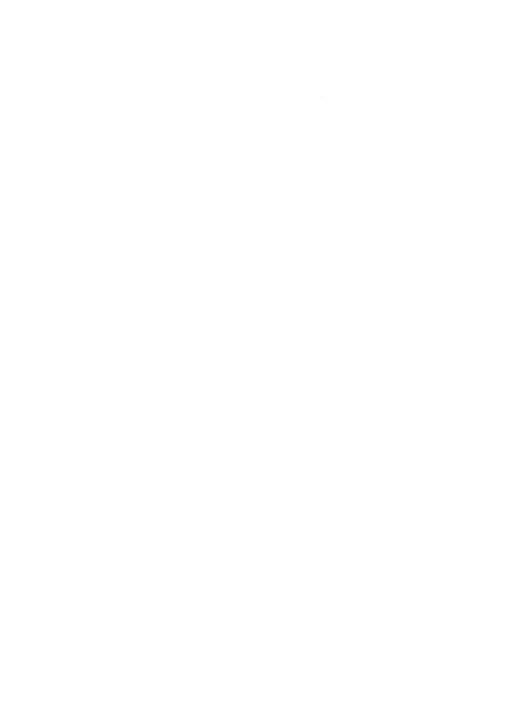
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<u>Introduction</u>

A building's structural evolution is often difficult to document through written and visual materials alone. Analysis of the building material itself can give a clearer understanding of the building's original physical composition and subsequent alterations. It is for this reason that this thesis will focus on the physical and chemical analysis of building materials. For each building selected in this study a short historical background and present physical and structural review will be given. This will be followed by the results of the paint and mortar analysis.

The Fairmount Park Commission has been kind enough to allow three of their buildings to be used in this study. The houses are: 1) Rockland in East Fairmount Park on Mount Pleasant Drive, 2) The Monastery in Wissahickon Park on Kitchen's Lane and 3) 206 Lincoln Drive in Rittenhouse Town on Lincoln Drive. (see Appendix #1). These three buildings were chosen for different reasons. 206 Lincoln Drive may soon undergo restoration if fundraising by The Friends of Historic Rittenhouse Town proves successful. Rockland is rented by the American Rowing Society. The society is planning to renovate the building, and at the present time is repainting the interior. Other renovations are planned for the interior and exterior of the building. Mortar and paint analysis are important for this renovation work. The Monastery was



the researcher at the commencement of this study lived at the site, and this allowed an in-depth study of the building's materials as well as its deterioration processes. The second is that this building is presently undergoing renovation; an attempt is being made to document past paint and plaster surfaces in the building before they are removed because of their deteriorated condition.

Review of Sampling Technique and Analysis Procedure.

In each of the buildings, paint, plaster and mortar samples were obtained. Each sample was chosen for what it would reveal about its materials composition and also what it may reveal about the building's structural evolution. A change in paint layers from one wall to another in a room may indicate a past alteration to that room. Differences in mortar composition may indicate an addition, alteration or a repair to a building. So the aim of material analysis is two fold. The first is to better understand the materials used in past building traditions; the second is to compile information on the building's structural evolution.

All sample sites were recorded on floor plans (See Appendix #2). The samples were placed in small plastic bags and given code numbers. Masonry and wood samples were not taken because their removal was deemed to be too destructive to the buildings.

Procedure for Paint Analysis

Paint analysis is a time-consuming and difficult task; much care needs to be taken at all times. The process of identifying the media and pigment of a single paint layer in one paint sample can take up to one hour. A single paint chip can contain up to thirty layers of paint. With sixty-two samples to analyze it became clear that an in-depth analysis of each individual layer of

paint contained in every paint sample would be impossible. To reduce the amount of time spent on each sample only the first one to three layers of paint were studied in depth. The media, pigment and paint colors were matched. Because a Munsell chart was not available the colors were matched to a Philadelphia paint company's colors. Many of the white samples were not matched; most had a linseed media and had yellowed. The various samples of white were not exposed to U.V. light in order to bring back their truest shade.

Paint samples were extracted with an "Exacto" Knife from each building by cutting into the substrate. In most cases the paint was too brittle to obtain a one inch square sample without the paint flaking off the substrate. Since the one-inch square sample was found to be impossible, smaller samples were taken with more success. Where it was possible, paint samples were taken from the walls and woodwork. Not all rooms in each building were done. Once the paint samples were coded and brought to the laboratory the paint samples were set into small ice trays using small balls of clay to keep them upright, while a polyester casting resin was poured to encase half of the sample. Once the polyester resin had hardened, the samples were removed, tagged and examined. Two microscopes were used. The first was a stereoscopic microscope with a magnification from 10% to 30%. It is with this microscope that most of the work was done. The

second microscope was a stage microscope with a magnification from 10% to 100%, and was used to examine pigments and crystal formation. A polarizing microscope was not available.

The procedure for paint analysis begins with the recording of the paint layers in the paint chip. The color names given in this step are arbitrary and do not reflect a color match. It is suggested in some paint analysis procedures that the paint chip be sanded flat before recording the number and color of paint layers. In the experience of the experimenter this procedure did not always yield the most information. If the sample contains an oil-based media it will take on a shine that retracts light and blurs the divisions between the layers. Sanding also removes the natural fracture between layers found in an unsanded sample. It was necessary to experiment. In some cases the layers were easier to determine before sanding; occasionally they more difficult to discern.

Once all layers have been recorded, one half of the sample was tested for the presence of lead, using a .1 molar solution of sodium sulfide. If the paint layer contains lead, the solution will turn black. It is important to treat only one half of the sample; if several consecutive layers react the lines between layers are obscured and distinguishing the layers becomes difficult. The unrelated sections are needed as a reference. After this the sample is then subjected to UV light. Any white layer of paint that did not react with the sodium sulfide

and fluoresces yellow-green may contain zinc oxide. This pigment was not used in the United states until after 1840. The presence of zinc oxide in a paint layer, therefore, indicates that it was applied to the structure 1 after 1840.

These two tests were performed on all samples and always completed first because these tests would not destroy the paint sample. The other tests for media could destroy a sample, so they were done last. The next step was to remove the first three layers from the paint chip. This was done under the stereoscopic microscope with a razor blade. The paint layer was lightly scraped to expose a fresh surface and the color was matched. It should be noted that for accurate color matching a larger sample should examined under natural light. Next the paint layer surface was again scraped and the fragments placed on a glass slide and treated with reagents to determine the pigment and media of each layer. Finally the media of all the layers were determined. Four solvents were applied in this order: Water to test for water based paints, dichloromethane to test for latexbased paints, dimethlyformaldehyde for oil-based paints and hydochloric acid for lime or calcimine paints. order was used because each test is progressively more destructive to the sample. Water will only dissolve water-based paints and has no effect on the other paints. Dichloromethane dissolves latex paints and slightly

softens oil-based paint, but has no effect on calcimine paints. Dimethlyformaldehyde dissolves both oil and latex paints but has no effect on calcimine paints. Hydrochloric acid is applied last because it will react with many of the pigments used in all paints. If all of the previous tests fail, then the acid will react with the paint to confirm a calcimine-based paint. If the acid is applied first it can give a false positive and destroy the sample. Unfortunately the paint sample is destroyed in the above test. It is for this reason that it is important to have two samples of every paint chip. (See Appendix #3 For Chemical test)

Procedure for Mortar Analysis

Mortar and plaster samples were taken at the edge of damaged areas where the materials were still sound. 50-gram samples were obtained from each building, coded and stored in a plastic bag and brought to the laboratory.

Twenty-five grams of mortar was ground to a fine powder using a mortar and pestle. This powder was placed in a 1000 ml beaker with 300-400 ml. of 3M. HCl. The hydrochloric acid reacts with lime and other calcium carbonate based binders found in mortars. When the acid reacts with the binder, carbon dioxide is produced. The solution bubbles and foams as the binder dissolves. When all the binder has reacted with the hydochloric acid the solution no longer foams. The remaining solution consists of water containing the byproducts of the reaction (CaCl)

and the insoluble portion of the binder (sand and fine impurities). The solution is then washed with large amounts of water and swirled to suspend the fines (very small silt particles). The fines and the liquid solution are decanted off. The aggregate remains in the beaker. The fines are caught in the filter paper and the liquid is contained in a 500 ml. filter flask. There are two methods of filtering liquid from a solid: either by gravity filtration where the liquid drains through the filter paper by gravity or by the use of a vacuum system that pulls the liquid through the filter paper. The second method of filtration was used in the procedure because it is less time-consuming.

Once the sand and the fines have dried they are weighed. This weight is then subtracted from with the initial 25-gram sample to obtain the weight of the binder. The weighted percentage of binder, fines and aggregate contained in the mortar sample can then be calculated.

The aggregate is then subjected to a grain size distribution test. The aggregate is placed on the top of a stack of sieves which descends in mesh size from 2.36 mm to 75 um. Through ten minutes of gentle shaking the sand or aggregate is separated by grain size. The amount of sand caught in each sieve is weighed and compared to the initial sand sample. The end result is a grain size profile of the aggregate.

The Monastery: Historical Development and Conditions Survey

The Monastery was constructed by 1752 for Joseph Gorgas, and stands three and one-half stories high. Ιt was made from rubble fieldstone with a cut ashlar front. Today the exterior of this building looks much the same, except for minor additions and alterations (for 1760 floor plans see Appendix #4). Additions constructed before 1803 included a kitchen wing and small bake oven covered by a shed. By 1900 a pantry had been added to the kitchen Subsequently, after 1900, the small bake oven and shed were removed. Interior alterations were made during the 1830s when Joshua Garsed owned the property. These alterations are recorded in Notes on Germantown written by John Fanning Watson. He described the alterations: "the place was last owned and occupied by Joshua Garsed, a large manufacturer of flax and twine... He has shut up many of the former windows, before equal to four to every chamber, making two on every angle of the square. Those who saw it [the Monastery] sixty years ago say that it then had a balcony all around the house - at the second story." In an article for the <u>Germantown Telegraph</u> Watson also wrote that Garsed had closed up the corner chimneys and modernized the house to make it a comfortable dwelling. Others said that the center stairs in the house were removed and new ones put up in a different location. (for 1840 floor plans see Apendix #5) After Garsed's

tenure, little was done to the house in the way of alterations other than inadvertent changes due to poor maintenance. These occurred after William Gordon Kitchen's death in 1871. He had owned the property since 1853, and during this time the buildings and lands had prospered. However, in 1873, after his death, the City of Philadelphia bought much of the mill lands which had supported the building. The Kitchens moved from the property in 1876; as a result of the buildings abandonment, its pent eaves fell off and the roof collapsed. The City of Philadelphia finally purchased the property in 1889 (See Appendix #6). After minor repairs were made the building was rented to the Kitchens Lane Golf Club, which undertook a thorough renovation of the building in 1900. In this renovation, the windows which Garsed removed were replaced. Two entry doors were added on the ground floor on the west side of the building. The small bake oven and shed was removed from the kitchen wing and a porch was added to the main wing.

The building today is much like it was after the 1900 renovation, although the wrap-around porch was removed sometime after 1935 and a front and back porch were put in its place. Interior alterations since 1900 include the alteration of the kitchen fireplace during the 1960s by the insertion of a smaller fireplace in the original hearth. The eighteenth-century wooden mantle was cut into and part of the mantle shelf removed. The mantle



remains in this condition today. The building's interior finishes were vandalized when it was vacant between 1960 and 1980. Shutters in the parlor were removed. All of the balusters on the stairs were broken and many of the walls damaged and defaced. Many of the interior plaster surfaces were lost because of water damage. Only one plaster ceiling survives on the first floor, and one on the second. Several of the ceilings on the third and fourth floor also remain. Sometime before 1969, the kitchen wing suffered a small fire which destroyed the dormer window and the roof. By 1969 the house was slated for demolition, but was saved when it was suggested that a children's museum be placed in the building. This idea never came to fruition, and it was not until 1980 that renovation began.

The roof was replaced on both the main and kitchen wings. The third and fourth floors were altered to accommodate an apartment. In comparing the 1935 HABS drawings with what exist today, the changes become clear (see Appendix #7). The third floor southeast bedroom was converted into a kitchen by removing a closet along the south wall and moving the entrance to the wall between the two south bedrooms. This created a new circulation pattern between the new kitchen (formerly the southeast bed room) and the new living room (formerly the southwest bedroom). A bathroom was installed in the third floor northeast bedroom. On the fourth floor a wood board partition along the west side of the stairs was moved to

the east side to create a room on the northeast side of the building. The wall between the southwest and the northwest rooms was removed to create one long room along the west side of the building. A partition separating the third floor apartment from the second floor was also installed. At this time baseboard heating was introduced into the second through fourth floors. Little in the way of alterations occurred on the second floor when a second apartment was added in 1986. A closet door was removed from the southeast bedroom and used for a closet door on the third floor living room. The bathroom was renovated and a closet added to this northeast room. The first floor main wing was unaltered, except for repainting and the substitution of sheetrock walls for damaged plaster walls. All the balusters on the stairs are new. Minor alterations have occurred in the kitchen wing. The wood floors in both the kitchen and the pantry had completely decayed and were replaced. A built-in kitchen cabinet was removed along with the remains of the plaster and lath ceiling. In 1986, the pantry was converted into a small modern kitchen by removing a pantry closet and changing the basement stairs. At the east end of the pantry a bathroom has been proposed but never fully installed. There is no heat in the first floor. A hot air system had been proposed.

Very little has changed on the exterior of the building due to the 1986 alterations. A small roof which

once sheltered the kitchen entry door was removed. The pantry window where the modern kitchen was installed was replaced and a section of the kitchen wing was repointed.

Conditions Survey

The building is presently in relatively stable condition. However, there are some plaguing deterioration mechanisms that have yet to be addressed. The first is water penetration into the foundation. This problem is caused by two factors: no gutters on the building and poor ground drainage patterns. The lack of gutters allows water to drain directly through the foundations, removing mortar from between the stone. As water pools in the basement it will elevate the humidity of the air, in turn causing the wood floor joists to begin to decay.

The second source of leakage into the building is via ground drainage. The Monastery sits on a plateau above the Wissahickon Creek, but not at the highest point of the surrounding grounds. Higher fields behind the house drain into the back yard of the building. Here, water pools along the west wall and back porch of the building. As a result, water is absorbed into the masonary wall by capillary action. In turn, both the interior plaster and the exterior stucco are spalding off the stone surface (see typographical map of site Appendix #9).

There is one structural crack in the main building, hidden by the roof of the kitchen. This crack is in the

northwest corner of the main building and runs from the second floor northwest window on the west wall of the building to a hole in the wall where plumbing has been punched through the exterior wall of the main building (see Apendix #10). The positioning of the crack seems to indicate that this corner of the wall has moved or is moving away from the rest of the building. Whether or not this crack is growing is unknown. At this point the progress on this crack cannot be monitored.

The other outstanding problem with the Monastery is the condition of the masonry joints (see Appendix #11). The gaps between the stone at the peaks are very large. 100 % repointing may not be necessary. However, the roof peaks, foundations and kitchen wing require immediate repair.

Paint Analysis for The Monastery

The objective in examining the painted surfaces in the Monastery was twofold. The first was to determine the comparative ages of the existing finishes in the building through the examination of the number of paint layers. The second was to determine the composition of the earliest paint layers in each sample. This may reveal if the paint was applied in the eighteenth century or if it was applied in a later renovation.

In observing the style of the finishes in the Monastery it appears as though the main building was altered in 1840 and 1900. The Kitchen wing seems to have the oldest existing finishes, even though structural evidence indicates that it is a later addition to the main building. By combining written information, structural evidence and results of paint and mortar analysis, the relative age of the existing finishes will be determined.

Sample Locations

On the exterior of the Monastery samples were taken from painted woodwork and stucco on the first floor level. On the interior samples were taken from the walls and wood work in three rooms on the first floor. These rooms were the kitchen, parlor and the small music room under the stairs. The entry on the first floor and rooms on the upper floors were not done because much of the paint



layers were removed during renovation work (see Appendix #2 for sample locations).

Results/Conclusions Interior/Kitchen

All of the information gained from the paint analysis indicated that there is little eighteenth-century paint if any on the first floor of the main building. However, the interior finishes of the kitchen may be from the eighteenth century. The doorway molding from the entry to the kitchen may also be original. The fireplace mantle is of the same age, as is the doorway to the loft. The question remains, are these older elements unaltered since the kitchen wing was added? At this point all that can be determined is that these three elements are of the same age. The reason their age in relation to the age of the kitchen addition is in question is that in probing the wall on the northeast side of the kitchen wing an older plaster layer was found an inch below the present plaster layer. This indicates that this wall was altered. There is other evidence that the kitchen was altered: scars on the west wall of the kitchen suggest that a fireplace or bake oven was once here. Scars from a stair that descended into the basement predate the fireplace or oven in this same area. One explanation for these older elements being of the same age (even though the walls around them indicate alteration) is that the wooden

elements may have been moved and re-used as the kitchen changed. The conclusion is that the wooden elements are eighteenth century but they may not be in their original location.

The ceiling beams were originally exposed in the kitchen and whitewashed. Twenty-nine layers of whitewash accumulated before a plaster and lath ceiling enclosed the beams. The loft above the kitchen, as well as the section of wall above the fireplace were also whitewashed. The rest of the walls that are seen today were covered in a light green oil-base paint. In time, perhaps after the fireplace was no longer in use, the area above the fireplace was painted the same color as the walls of the room.

It is difficult to conjecture how the kitchen looked when it was first built. The first layer of wall paint is covered by a completely new layer of plaster, which includes a brown coat and white plaster. This in turn is covered by twenty-nine layers of white wash and the ceiling was then enclosed with plaster and lath. The color of the first paint is red (iron oxide); the paint found on all of the older wood work is also red. It was common to use iron oxide as a primer coat on wood work. Thus, the first paint combination may have been red walls with white woodwork that was then varnished. The ceiling beams were exposed and whitewashed as was the area above the fireplace. After the original plaster layer was covered, the ceiling remained exposed and white washed; the walls

were a light green and the woodwork was white.

Later in the paint sequence both the wall and woodwork colors become stronger. The woodwork was painted consecutively pink, green, yellow and then grained. The walls were painted strong greens and yellows. Finally, white regains its appeal and is used on all surfaces.

Music Room

The music room has been altered. At some point a new white coat of plaster was applied to the walls in this room. The west wall of this room is spalling badly because of rising damp; the older layer of plaster can be seen. This layer consisted of a base coat with fibers and a white coat of lime. This in turn was coated by thirteen layers of whitewash. The white plaster coat was applied over the whitewash and painted nine times. The woodwork in this room has very few layers of paint. The doorway which leads to the exterior on the west side of this room was added in 1900. It has the same number of paint layers as the doorway molding on the opposite side of the room. Stylistically the molding used in this doorway is older but seems to have been re-used in this location. The window is older than the rest of the woodwork in this room: it has three more layers of paint and the first coat is the same iron oxide with which the woodwork in the kitchen was coated. This suggests that the window may be an original element or at least contemporary with the kitchen finishes.

fireplace, although it is in an 1840s style, seems to have been re-used, because it has the same number of paint layers as the doorways. The one difference is that the fireplace has a base coat of black. This fireplace may have been marblized, a common finish in the period 1820-1840. This room seems to have gone through two alterations; once in 1840 with the alteration of the fireplace and in 1900 when the door to the exterior was added and the door leading to the entry was also altered.

Based on the composition of the paint and on a comparison of paint layers with a known 1900 alteration the wall surfaces seen in this room today are probably post-1840, and most likely twentieth-century coatings. The wall begins white; this may be a primer coat for the next red coat of paint. Three out of the four samples show the next layer of paint as a translucent gray color. After this there seems to be a difference in how the wall just below the ceiling was painted as compared with the rest of the wall. The three samples taken from the middle of the wall show a red, yellow and then a green or blue sequence in paint layers. The sample from high up on the wall does not contain these colors but remains a cream white. The evidence indicates a polychromatic decorative treatment. This was a common wall treatment during the Victorian era. Another section two feet below the ceiling may have been wallpapered. The plaster wall on the northwest side of this room has the remnants of a glue on



the surface. All wall surfaces eventually return to white and are now painted green.

To determine the first paint colors applied to this room is difficult. At one point the walls were whitewashed, but what the woodwork was like is unknown. The woodwork treatment that exists seems to date from the 1900s, and the wall from somewhat before.

Parlor

The parlor shows much of the same treatment as the music room. The walls have been replastered and the previous plaster layer has been whitewashed, although not as extensively as in the other rooms. There is very little paint on the woodwork; it dates from the 1900 restoration. The woodwork dates from the 1840s; the earlier paint may have been removed when the twentieth-century paint was applied.

Exterior

The treatment of the first floor exterior of the Monastery has changed through the years. The front or the southeast wall under the porch was originally ashler cut stone pointed with white mortar. At some time the pointing mortar was whitewashed. In 1900, when doors were introduced into the west side of the building, a porch which wrapped around three sides of the house was put in place and the first floor exterior was stuccoed with a very soft mortar. The mortar was then painted seven times, mostly in shades of white but once blue. The back of the house (which like the two sides of the building is

rough field stone rubble with white mortar joints) was originally left bare. However, when a small shelter was placed over the back entrances to the kitchen and the main house (before 1900) the walls in this area were white washed. Twenty-two applications of white wash were applied over the pointed stone work before stucco was placed over the white washed walls in 1900.

Frequent periods of abandonment and neglect of the Monastery have left very little exterior paint. The samples taken were generally inconclusive, but they indicated that the oldest windows on the first floor are those on the kitchen wing and that the first coat of paint was iron oxide. This was probably a primer coat not a final coat (see Appendix #13 for test results and Appendix #12 Paint Stratigrapy).

Mortan Analysis for the Monastery Objective and Sample Locations

The main building of the Monastery has a kitchen addition, and a thick masonry wall may have been introduced on the interior of the building between the parlor and the entry. Mortar samples were taken from these areas to see if there mortar compositions differed.

Exterior mortar samples were taken from stucco added in the 1900 (photographs taken at this time verify its date), a modern stucco patch applied in 1985 and deep mortar samples from the walls of the building. These samples were taken in these locations in order to determine if the later mortar aplications were compatible with the original mortars. The composition of the original mortars was also needed if a new mortar was to be produced to repoint the building in areas of damage.

Results/Conclusions

There are six types of mortar found in the Monastery. These include two types of interior mortar The first #1 contains animal hair and is used to cover the interior wall of the main building, the second #2 is an interior deep mortar taken from the interior center wall of the parlor. Four types of exterior mortars included, #3 a deep soft yellow mortar found only in the exterior walls of the main building; #4 a white pointing mortar found in main building on the surface of the deep yellow mortar; #5

a white mortar found through out the kitchen wing exterior walls; and finally #6, modern mortars characterized by their gray color, slow dissolution in acid, and low percentages of fines and binder.

Interior Mortars

#1: Interior brown coats found beneath new layers of plaster in the parlor, music room and kitchen were similar. All contained animal hair fibers. The sample from the parlor had a higher concentration of fibers than did the other two samples. The percentage of fines in the interior sample were 5% with the kitchen wing having 12% fines. The colors of the fines from the kitchen and the music room are identical although the sample from the kitchen has twice the amount of fines. The percent of binder in these samples ranged between 30 and 40 percent of the total sample. The amount of aggregate was between 50 and 60%. The aggregate range is narrow with most falling between 600 um and 150 um. The sample in the kitchen and the music room may be of the same period the parlor sample may be later. The interior brown coats are 21-M-M, 16-M-M, 15-M-M, and 11-M-M.

#2: A second interior mortar sample (17-M-M) taken from deep within the stone wall that separates the parlor from the entry in the main building did not have the characteristic yellow color of a deep mortar found in the exterior walls of the building. This mortar is gray white

and much harder, it has a lower content of fines (11.67%) than exterior deep mortars. The aggregate range is much the same as the exterior deep mortars but the percent of sand is higher (58.9%). This deep mortar is more like a pointing mortar in its hardness and amount of binder (29.43%). However, it differs from pointing mortars in its range of aggregate. It is for this reason that the term transitional mortar has been applied to this sample. It has been suggested that this wall was added when a center fireplace was constructed. This mortar analysis tends to support this hypothesis.

Exterior Mortars

#3: The deep mortar found on the exterior walls of the main building of the Monastery is characterized by a burnt umber color and a high percentage of fines (15% - 30%). The range in aggregate size can be quite large with up to 24 % of the aggregate being larger than 2.35 mm. This mortar is very soft with a binder content ranging from 30% to 50 %. It washes away quickly once exposed to the elements (see samples 10-M-M, 13-M-M-B, 5-M-M, 3-M-M, 8-M-M. Appendix # 14)

#4: The pointing mortar was found throughout the main building. It is characterized by a smaller range in the aggregate size, (most of the sand falling between 1.18 mm and 150 um) its hardness and white color. The percentage of binder (40 % to 58 %) usually exceeds that of the aggregate (37 % to 44 %). It was used as a pointing mortar above the deep yellow mortar in the main building

(see Samples 4-M-M, 2-M-M, 6-M-M, 13-M-M-A Appendix #14).

#5: This type of mortar was found in the kitchen wing. All samples, whether from the interior or the exterior had the same basic composition. The percent of sand was between 45 and 53, with fines from 10 to 18 percent and binder from 30 to 40 percent. This difference in sand/binder proportions collaborates with historical evidence that the kitchen wing was added sometime after construction of the main building. (see samples 9-M-M, 12-M-M, 14-M-M, 1-M-M).

#6: Modern mortars found on the Monastery have a higher percentage of aggregate (73 %) with a smaller range in aggregate size (between 600 um and 150 um). The amount of fines is very low (5%). The hardness varies with the type of binder used. Sample 7-M-M was very hard and was very difficult to dissolve. This may indicate the use of a Portland or natural cement. There were two cases of this type of binder in the Monastery. One was the stucco on the west side of the main building (6-M-M-S) and the other was a stucco repair.

The analysis indicates that all but the modern mortars used lime for a binder. This is indicated by the relativ softness of the mortars and high acid soluble portion and gas evolution during dissolution. The aggregate used in all of the mortars found at the Monastery (except the modern mortars) came from the Wissahickon Creek. The

color, composition and range in particle size is the same.
For finer work the larger aggregate was removed (see
Appendix #14 for all data sheets).

The mortar analysis also indicates that the wall between the entry and parlor was a later addition. The Kitchen wing was also a later addition. However, unlike the mortar from the parlor wall the kitchen wing mortar composition is very similar to that of the mortar from the main building. This information probably indicates that the kitchen wing was added earlier than the wall between the parlor and entry.

Recommendations

Deterioration caused by water penetration into the basement and the foundations of the building could be eliminated or mitigated by placing gutters on the building and regrading the land in the upper fields behind the building. Gutters would keep water out of the basement and regrading would redirect water runoff to storm drains that lined the access road to the site.

The introduction of hot air heat into the first floor should be done with caution. Punching a large hole though the main building wall below a stress crack may destablize this corner of the building. Also, introduction of this type of heating system into the first floor will require partial removal of the 19th-century floors. Before this type of heating system is introduced into this building it is recommended that a complete study of the wall movement be made. Alternative heating systems with less impact on the structure should be considered. This would determine if a hot air system is appropriate for this building.

The repointing of the Monastery should be a priority in its restoration. The roof peaks and kitchen wings need immediate attention. A lime-based mortar using one part hydrated lime to three parts washed and sieved Wissahickon Creek sand should be used.

The stucco on the first floor exterior should also be



completely removed so that the foundations may dry. The stone beneath the stucco, once exposed, may bare the scars of past windows and doors. This should also be repaired. It should be noted that without removing the water from the foundations the repointing of the first floor stone work will deteriorate quickly. It is also recommended that if there is a desire to repaint the first floor of the Monastery in the colors revealed in this study, a second study with emphasis on the composition of the first paint layer be completed and the color matching be done in natural light based on larger samples scraped down to the desired layer. If general color schemes only are needed, then the findings in this study could be used.

In conclusion the Monastery's present condition is stable and the rehabilitation of the interior progresses. However, the continued deterioration of the building's foundations and walls should be addressed. Ignoring this problem will only defeat the rehabilitation of the building in the long run.

206 Lincoln Prive: Historical Development and Conditions Survey

This building being studied sits on a bank above Lincoln Drive in Wissahickon Park. Once one of many buildings comprising Rittenhouse Town, it now stands in a small cluster of six structures. 206 Lincoln Drive is one of the oldest buildings on this site; it was erected on a tract of land purchased from Samuel Carpenter by William Rittenhouse and others in 1705/6. William Rittenhouse had already constructed the first paper mill in the colonies on this land in 1693. This building and the site surrounding it were of a great importance to colonial Philadelphia, and the family has played a significant role in Philadelphia history. It is said that as the family enlarged, so did their buildings. 206 Lincoln Drive has been altered from a two and one-half story dwelling to a three-story stucco and stone building with several additions. Additions include a two and one-half story structure on the east side, a two-story wood frame addition on the back of the house, and a porch which united the three-story building with its two and one-half story addition. (see Appendix #15)

Before a complete discussion of 206 Lincoln Drive can be undertaken, it must be understood that this site is very difficult to document. The Rittenhouses who settled and built a modest-size village at this site did not record their real estate transactions with the Department

of Deeds and Records in Philadelphia. The few deeds that do exist often list past transactions, but without detail as to what improvements were on the site when those transactions took place. This makes it very difficult to determine when this building was constructed or altered, and by whom. The first deed that was found in the City Archives was written in 1760 and reviews the title 10 transfers between 1690 and 1760. (See Appendix #16)

By the language in this deed, 206 Lincoln Drive could have been constructed at any time between 1706 and 1760. Unless earlier deeds are found, it is not possible to date this building through deeds. The use of maps has also been found to be unsatisfactory. The surveys done by Christan Lehman between 1764 and 1772 do not supply any answers. The first map done in 1746 and reviewed in 1764 was drawn to show the division of property below the 20 acre plot upon which 206 Lincoln Drive sits. No dwellings are shown. Other maps done during this time do not include dwellings. It is not until 1772 that the surveys begin to show buildings. 206 Lincoln Drive and several other buildings appear in a 1772 survey showing the division of the William Rittenhouse property. The building is shown again in 1774, when Jacob and Abraham Rittenhouse divided the 18 acre plot bought from William Rittenhouse in 1760. maps see Appendix #17) Even the interior of this building has been altered drastically over time, and its layout is of little help in determining its original configuration or age.

For the purposes of this study it will be assumed that the dwelling was constructed sometime before 1760. By looking at the surveys done in 1772, the building seems to be two and one-half story. The other buildings that exist today on this site are also two and one-half story. Unfortunately there is no hard evidence in the written record to confirm the assumption that this building was originally two and one-half story, instead of three. By looking at the inventory of furnishings found in Jonathan Rittenhouse's will the number of rooms can be speculated upon. There seem to have been one or two bed chambers, an entry, kitchen and dining room. This would equal a total of four rooms in the house, two rooms on the first floor and two on the second indicating a small two story house. (See appendix #18). Reviewing insurance survey maps done between 1874 and 1924, it is not clear whether the building was altered from a two and half story building to a three story as many secondary sources insist. A change in the footprint is evident, though. In 1884 the footprint is essentially a square; this changes by 1892 when the building becomes oblong with a 1.3 This change in footprint small extension on the back. coincides with the change in ownership, from the estate of 14 Naomi Rittenhouse to William Umsted. William Umsted is credited with adding the two and one-half story masonry 15 structure to the original section of the building. He

must have also added the the small two-story wood frame section on the back of the building. In 1911 the footprint changes to show the addition of the wooden porch. The footprint of the masonry section is 16 unchanged, but the number of floors is given as three. Since the footprint of the building is the same as the 1891 map it may be concluded that Ulmsted completed the major alterations. This included raising the roof of the original portion from two and one-half story to three story, the two and one-half story Victorian addition, the wooden addition on the back of the building, and the wooden porch after the turn of the century. In 1916 a written survey of the building, done for Fairmount Park before they purchased the property in 1917, describes the 17 structure as follows:

The Nurses home which was formerly the old mansion consisting of a three story stone building with two story stone and attic addition. The first floor has one large room with open grate, three other rooms, sun parlor, bath room with toilet.

The second floor contains three rooms, each with large fire places, one small room and large bath room with porcelain tub, shower enclosed in marble, toilet and wash stand. The third floor contains three rooms and attic used for storage.

The house is wired for electricity...

There have been a few changes in the house since this time. The fireplaces have been removed from the second floor, and the second floor shower is no longer enclosed in marble.

Conditions Survey

Since this house is a collection of additions the roof can be a problem where old and new join. At the head of the stairs on the second floor of the two and one half story addition there is evidence of a roof leak where the two roofs meet. Other roof leaks are seen in the old wing of the building on the third floor. Above the stairs, and in the small back room the plaster ceilings shows signs of water penetration. The worst water damage is seen on the third-floor chimney stack (See appendix #19). A large section of the interior plaster has fallen away from the chimney to expose the brick. On the floors below, the problem is repeated. Water is seeping into the chimney through poor flashing around the chimney on the roof and destroying the interior plaster in the older wing of the house. A glaring problem seen on the exterior of the building is the delamination of the white coat in the stucco. This creates large holes in the surface. The paint is also peeling on all surfaces. The general overall appearance of this building is poor. Some work was performed on the exterior of this building during the 1970s. All of the existing window frames, sills. and sash inside and out were to be restored, cleaned, repaired and painted and made operable and weather tight. Not all of this work was completed. New shutters were made where they were lost and the back door leading from the wooden frame addition was altered (see elevations Appendix #15).

18 The number of windows that were repaired is not known.

The house is presently being used as a residence and is in a poor state of repair. The heater is not working properly and emits black smoke through out the interior of the building. The roof is failing in several places and should be repaired or replaced.

The interior of 206 Lincoln Drive at present is in relatively good condition. Patching of plaster and a new coat of paint will solve most of the interior problems as long as the roof is repaired. There is some water penetration in the basement but it does not seem to be a major problem (See Appendix #20).

206 Lincoln Drive Paint Analysis

206 Lincoln Drive is a building that is not well—documented in written history and yet the folk history surrounding this building is very strong. There are plans to "restore" this building to its perceived original configuration of a two and one half story building. The paint analysis was used in this building to try and determine if any of the "original" finishes still existed in this building, so that if restored, the sections of original fabric could be salvaged. The second aim of the paint analysis was to document the structural evolution of the building. The older sections of the building should have more layers of paint than later additions.

Sample were taken from opposite ends of the building on the first floor. The dining room on the west end and the living room on the east end. Faint samples were also taken on each floor of the west end on the building to see if there was a significant change in paint layers between the second and third floors.

Results/Conclusions

The early date placed on the west end of this building is not substantiated by paint analysis. This does not mean that the building was not constructed in 1720; it merely suggests that the interior of 206 Lincoln Drive is not the original interior. The number of paint layers is not extensive; calcimine or lime wash is not found and zinc oxide appears early in the paint sequences, thus post dating

the subsequent paint layers to after 1840.

Exterior

Although little evidence remains of the earliest painted finishes, paint analysis does reveal how the building changed in the late mineteenth and early twentieth centuries. The number of paint layers found on the first floor west side exterior is much greater than on the east side first floor. This was expected since it was known that the east end of the building was added at the end of the nineteenth century. The existing exterior wood work of 206 Lincoln Drive has always been white oil-based paint. It was not until recently that the color was changed to green. The stucco that is seen on the building is a second coat with a very fine white aggregate, indicating that it is a twentieth-century application. This stucco also has several layers of paint applied to its surface. The porch floor was initially painted gray; its color then alternated between green and gray with gray finally becoming the predominant color (see Appendix #21).

Interior

First Floor

Paint samples were only taken from the woodwork on the first floor because any damage to the walls was deemed unacceptable. Analysis indicated that the dining room baseboard was usually painted white in earlier periods of its history. Out of the thirty-three layers found in this sample twenty-four were white. It is not until later in

the paint series that other colors begin to appear.

Yellow, orange and red are found once, and blue twice at different intervals. The window lintel reflects the same patterns. It was originally painted white (seventeen layers of twenty-four); blue and yellow appear once in the sequence. Woodwork in the living room was painted in various shades of white fifteen times. Once again the number of paint layers on the west side of the building outnumbers the amount on the east side of the building. The one area where this does not hold true is the kitchen. The sample taken from the wooden panel in the kitchen has very few paint layers. The wooden panel may not be original to the kitchen, or paint layers were removed before a fresh coat of paint was applied.

Upper Floor

There is very little paint on the second and third floors of the west wing. The second floor was painted only seven times, while the third floor was coated only three or four times. The third floor was also replastered some time in the recent past. Another plaster layer can be seen where a roof leak has destroyed a section of the ceiling. It has been suggested that the third floor was an addition. The lack of paint seems to support this hypothesis. However, it is more likely that the surfaces seen on the second and third floor postdate that alteration and reflect changes during the later nineteenth century. It is possible that



when the east end addition was added these small west end rooms were remodelled and then rarely used.

The second floor west room wall colors were not white. The walls were initially painted yellow; that color reappears once again later in the sequence. Several shades of blue occur four times in the series with orange, pink and white occurring once. The white is the last applied paint color. The woodwork in the second floor hallway reverts back to white, although blue shows up three times in the sequence. The wall color in the stair hallway on the east end of the building is white half of the time and shades of blue of green the rest of the time. The trend seems to be a color treatment of the walls and white woodwork; this pattern continues on the third floor. Yellow and green and white are the recurring colors found on the walls and ceilings, while the wood work is white (see Apendix #22)

Mortar Analysis for 206 Lincoln Drive

Mortar analysis was performed to find the original composition of existing mortars and stucco finishes, but due to limited access to samples in areas not damaged, key mortar samples were not taken. Only four mortar samples were examined, two are from the third floor interior, one from the basement and the fourth is a surface layer of stucco from the first floor exterior.

Interior

The two samples taken on the third floor are almost identical in the percentage of sand, binder and fines, ie., 2-Ri-M: 67.03 % sand, 5.5 % fines and 27.43 % binder; 3-Ri-M: 65.42 % sand, 6.91 % fines and 27.67 % binder. The aggregate found in both samples seems to have come from the creek which runs by this building. The only noticeable difference in composition is that the sample from over the stairs (2-Ri-M) contains animal hair while the one on the fireplace chimney does not. Also the chimney sample has a larger aggregate range than the ceiling sample. The difference in composition of these two mortars may be due to where they are applied. The ceiling mortar may need the additional reinforcement that the animal hairs provided. The wall mortar may not need to be as strong so the animal hair is omitted.

The sample in the basement differs from the third floor mortars. The aggregate is not from the creek. There

were no large lime chunks found in the mortar, and the mortar was much harder than the mortars on the third floor. However the proportion of sand, fines and binder is much the same, ie., 4-Ri-M 64.19 % of sand, 6.78 % of fines and 29.03 % of binder. This seems to imply that the sand was shipped from another location and a hydraulic binder was used instead of a lime binder, but the ratio of binder to aggregate was maintained.

The other mortar sample (1-Ri-M) is a modern application of a white plaster coat on stucco. The aggregate has been selected for size and is very uniform. It has a high content of binder making it more similar to a plaster than a stucco. Percent of binder is 72.79, percent of fines 9.45 and percent of sand is 17.76 (see appendix #23 for data sheets).



Recommendations

The roof repairs should be made a priority in this building. The deterioration seen on the interior plaster ceilings and walls will only get worse with time. The areas where different roof structures meet seem to be weak points in this roof design. After repairs are complete these areas should be examined for leaks once a year. The spalling stucco on the exterior should be repaired using a compatible stucco that is determined through mortar analysis, and then painted. The interior after both the heater and roof has been repaired needs to be repainted. All of the exterior woodwork needs to be repainted. It should be noted that the first paint color found on the building was white not green.

The color combinations revealed in this study indicate that the late nineteenth and early twentieth— century wall treatments were white woodwork with wall surfaces of white blue or yellow. Before any conclusions are drawn regarding the age of this building or the period of the existing interior finishes, it is strongly recommended that deep wall samples be taken. Original plaster samples may be found beneath the nineteenth and twentieth—century plasters. This may lead to a better understanding of the building's structural evolution through time. Minor damage to small sections of wall is well worth the information to be gained. In addition Mr. Peter Odell holds samples from his restoration of the kitchen fireplace which could provid useful information.

Rockland: Historical Development and Conditions Survey

Rockland, a striking example of Federal architecture, was built c. 1810 by George Thomas. He owned the property until the death of his wife five years later. He then sold the house to Issac Jones, whose family owned the property until the City of Philadelphia purchased it in 1870 (see 19 Appendix #24). During Issac Jones' occupancy the house must have been quite opulent, judging from the inventory 20 of furnishings found with his will (see Appendix #25).

Once the city came into possession of the property, its uses varied from residence to headquarters for several groups, the last two being the International Gastronomic Society (1979-1983) and the present tenant, the American Rowing Historical Society (since 1986).

Rockland is a three-story masonry building with pebble-dash stucco walls and a ruled ashlar entry. Unlike the other buildings in this study, Rockland has changed little through the years. There have been no additions, and few alterations. One exception which has changed greatly is the basement. Once the location of the kitchen, it is now used for storage and contains only the furnace. The fireplace and bake oven have been bricked up, and a new cement floor put down. The kitchen is presently located on the first floor in the small room opposite the stairs. The upper floors have not changed, although a



bathroom has been introduced on the second floor in a small room adjacent to the stairs (see floor plans Appendix # 26).

Even though Rockland has not undergone major alterations, it has seen hard times. A description of the building found in the Engineers' Survey Notebook reviews 22 Rockland's condition around 1868:

Bergdoll floor in cellar or basement bad, one side falling in. First floor good. Glass Broken-45 panes. Second floor good. Stairs good. Third floor good. Tin Roof on look out wants a little repairing around trap door. Banister on top broken, the other part of roof is shingle, not very good. 39 feet front, 40 feet deep. Front porch wants repairing.

Many of the problems described above can be seen recurring today. Several glass panes are missing in the windows; the front porch as well as the back need repair; the balusters on the roof were removed when roof work was completed in 1983. Chronic roof leaks have damaged plaster on the third floor. Plaster and wood deterioration has occurred through out the building due to the lack of heat. and to water penetration. But unlike other park houses, Rockland has not been neglected. The deterioration seen in the building today has occurred since 1976, when approximately \$130,000 was paid for its restoration. But since then, little maintenance has been performed by the tenants. Adding to this problem was the lack of heat, which resulted in the freezing of water pipes, this in turn caused the destruction of the heating system and some of the 23 interior finishes.



Conditions Survey

The basement is showing signs of rising damp with effluorescence on the walls. During heavy rains, water comes into the basement through a door on the south side of the building. Also, a constantly dripping valve in the basement soaks the floor and walls. Panes of glass that are missing throughout the building need to be replaced. The third floor ceilings are damaged from past roof leaks and most of the painted surfaces in the building are peeling.

The exterior of Rockland is showing the signs of little or no maintenance. Although the interior shows these same signs, the exterior renovation cost will triple quickly if nothing is done. The stucco on the wall is beginning to spall off. This may be due to poor ground drainage, which allows water to be absorbed by the masonry and carried up the wall by capillary action. When the water freezes it forces the stucco off the wall. Much of the wood fenestration is decaying from lack of paint. The back porch baluster has been partially removed and a section of it lies below the porch. The bottom section of the leaders from the gutters has been dislodged, so that water sprays onto the building walls and seeps into the foundations.

There is a structural deformity in the south wall of Rockland. It is not know how severe this problem is is

not known; the situation may have stabilized. However, the south wall of Rockland at about its center bows out and drops. There is a definite deflection of the wall at the base. A crack is seen extending from the roof to the ground on this wall. The interior shows the effects of the drop; the window frame in the dining room is askew, as is the window frame above on the second floor (see appendix #27).



Paint Analysis for Rockland

Rockland is a high-style Federal building, built much later than the other two vernacular buildings examined in this study, and essentially unaltered structurally. It is a building in which the initial paint treatments could be revealed through paint analysis. The entry, dining room and stair hall were sampled because it was felt that these rooms would have been ornately decorated because they would have been used for entertaining. Also, if a restoration of this building was completed the correct wall treatments would be an important factor in its restoration.

Results/Conclusions

Of all three buildings examined in this study, Rockland has the most interesting and diverse wall treatments. Both wallpaper and graining were seen in the paint samples. The front porch columns were painted various shades of white; there was not any evidence of sand in any layer.

Interior

All of the first floor of Rockland was wallpapered at one time. Evidence of this is can be found in the corners where the walls meet the wood work. Samples taken in the middle of the walls will only record paint applied after the wallpaper was removed. This was not realized until the samples were analyzed in the laboratory. In examining the sequence of layers it becomes evident that the paint

samples without wallpaper are missing the first layers of paint.

The first floor samples that are complete show the first paint color as a translucent blue in the entry and dining room. This is probably a Prussian blue in linseed oil, but tests of different samples showed different results. This blue also ran along the stairs below the chair rail. The area above the chair rail on the stair hall was painted white. The next applied layer on the first floor was wall paper. The entry paper was a red and green, while the dining room paper was green. The wall below the chair rail on the stairs carried wallpaper the same color as in the entry to the second floor while the area above the chair rail remained white.

A comparison of the number of paint layers on the stair woodwork (23) and that of the doorway between the dining room and entry (Door-14, molding-8) suggests that the doorway between the dining room and the entry may not have been painted. The first layer of paint on the doorway is a pale, greenish-tinged white. This changed to a gray. Light greens and yellows followed, until it was grained, as were the stairs. The stairway woodwork was painted white until late in the paint sequence and then it was grained twice. The stairs then revert back to white. It should be mentioned that the floral pattern found on the stair woodwork is made from lead and is not carved from wood (see Appendix # 28 and Appendix # 29).

Conclusions

Rockland was found to be the most colorful of all three buildings examined in this study. In the Monastery and 206 Lincoln Drive, the predominant color was white. In Rockland there were many shades of blue, green and yellow. Red is rare, as in the other buildings. Of all the buildings, Rockland has been altered the least and still remains faithful to its architectural intent. If one were to choose a building to "restore" this would be very good candidate.

Mortar Analysis of Rockland

Mortar analysis was done on Rockland to determine the composition of the existing plaster and mortar surfaces. The analysis of the exterior rubble dash stucco was important because visual inspection of the exterior wall revealed that there were two separate applications of this type of stucco. The analysis would reveal if these two applications were of the same composition.

Exterior

Of the five mortar samples taken from Rockland three are from the exterior. A deep mortar sample was taken from beneath two layers of rubble dash stucco on the exterior of the building (2-Ro-M). This deep mortar is characterized by its softness; its binder-to-aggregate ratio is one-third to two-thirds by weight. The two rubble dash stucco samples on top of this deep mortar both have a one-quarter to three-quarters ratio of binder to aggregate (1-Ro-M, 6-Ro-M). However, there is a large difference in the aggregate size and coloration between the two rubble dash stuccos. The original stucco aggregate (6-Ro-M) looks as though it came from the Schuykill River. It has mica shards and small chunks of schist stone. The overall color of this aggregate is iron brown. The newer stucco 1-Ro-M (probably a twentieth-century application) looks as though its aggregate comes from beach sand. It contains large white round pebbles not found in the original stucco. As a result this stucco is much more

lumpy and white in color.

Interior

The samples taken from the interior of the house came from the basement and the third floor. The basement sample is probably the original plaster surface in this location (3-Ro-M). It is a brown coat with animal hair to add strength. It has the same characteristics as the brown coat mortars found in the other two buildings but the amount of binder indicates a pointing mortar when compared to this sample group. The high binder content may be due to a layer of pure lime plaster covering the brown coat. The percentages by weight are: 26.29% aggregate, 10.67% fines and 63.03% binder.

The third floor sample is a plaster with a fine white aggregate (4-Ro-M). It is very similar to the stucco sample on the exterior of 206 Lincoln Drive. It has a very high binder content, and a low fines content. The actual percentages are 31.73 % sand, 3.31 % of fines and 64.94 % binder (see appendix #30 for Mortar Data Sheets).

Recommendations

A routine maintenance schedule needs to be developed for Rockland. The repairs that are needed today are recurring problems that show at regular intervals. The damage to the third floor ceiling is from roof leaks. This roof seems to be predisposed to leakage in certain areas. For this reason the roof should be routinely inspected for holes. The rest of the interior painted surfaces are in poor condition due to the lack of heat during the winter months. A tenant that occupies the building year round is necessary. The other maintenance problems discussed in this paper are easily corrected with some diligence. The leaders that are missing their bottom sections are easily corrected. The water coming into the basement through the door could be stopped by regrading the land outside. Broken windows can be replaced. All of the suggested repairs are minor in nature and would not consume large amounts of time or resources.

Sections of the stucco on the exterior of the building are spalling off the building. At some point this building will once again need to be restucced. When this occurs it is suggested that the aggregate used in the new stucco resemble aggregate found in sample 6-Ro-M useing a lime binder in the proprotions of one quarter lime binder to three quarters aggregate by weight.

The use of the information provided by the paint

analysis should only be used as a starting point. If it is desired to reproduce the first paint found on the wood work and walls it is suggested that further study be done. Paint analysis is a complicated procedure and verification of these results are recommended. Also exact color matching using large samples under natural of simulated natural light.



Mortar Analysis: Conclusion

In this study of mortars it was tound that 204 Lincoln Drive and the Monastery used similar aggregates. Both buildings are located in the Wissahickon Valley and used sands harvested from the local creeks. If other sand types were found in the mortar of these two buildings, it was concluded that these were later mortar applications. Similarity were found in all three buildings in the proportions of binder and aggregates found in different types of morters used in the construction of the buildings. Bedding mortars or deep mortars found between the masonry have a large range in aggregate size. The older the building the larger this range becomes. The older buildings also have a higher content of fines in the bedding mortars. This could be that the sand was taken directly from the creeks and not seived to removed the fines. The percent of binder is often equal to the amount of sand. Average proportions are: Sand 35-50%, Fines 9-30% and the binder 35-50%. Pointing mortars have a higher percentage of binder than sand and the amount of fines is much lower than in the bedding mortar. Pointing mortars are harder and have a smaller range in aggregate size; the larger particles are not found in a pointing mortar. Average proportions by weight are: Sand 30-45%, binder 40-60% and fines 4-10%.

Interior mortars usually contain more binder than sand except in the Monastery where the sand exceeds the

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binder; in all buildings the aggregate is much finer than in either the bedding or pointing mortars. The interior mortars also tend to have animal hair or straw added to as reinforcement. Average

proportions by weight are: 30-50% sand, 30-60% binder and 5-8% fines. The last category of mortars has been called "modern mortars." These differ from the above mortars in their strength and proportions of sand and binder. The amount of binder is very low and the amount of fines minimal. The aggregate size is always narrow. Average proportions by weight are: 70-80% sand, 5-10% fines, and 20-30% binder.

It should be understood that the above conclusions are drawn from only three houses. There are strong similarities, not shared with Rockland, between the materials used in the construction of the Monastery and 206 Lincoln Drive. More buildings need to be studied, with an understanding of when they were built and by whom. This study drew comparisons between two buildings constructed in the early to mid-eighteenth century and a third that was constructed in the early nineteenth century. The technique of construction may change over time and the conclusion in this study may only apply to buildings constructed before 1820. For an accurate understanding of building construction a larger number of buildings need to be studied.



Paint Analysis: Conclusions

Information about the buildings and progression of additions was clearly reflected in the number of paint layers applied to each structure. No conclusions were drawn in regard to identification of pigments in the first paint layers. Further work in needs to be done in this area. Perhaps to establish both an exterior and interior palette for buildings of different periods before evidence is destroyed by renovation.

In conclusion it was found that paint analysis is a valuable tool in determining the relative age of the additions and alterations found in a building. It also documents exterior and interior decorative treatments not often recorded in written documentation of buildings.

Conclusions/Recommendations

The restoration of a building is a long and involved process. It can often be expensive and time consuming. Before any restoration is attempted for a building of historical value a through investigation into the written documentation and structure needs to be performed. The physical analysis of the building is as important as the investigation of the written documentation. The building itself contains a wealth of information that is often ignored. Through a detailed examination of the building material a complete history of a building's interior and exterior treatments and alterations can be compiled. In any building there will be gaps, but with this information decisions on future interventions can be made.

In conclusion, a restoration of a building should not be started without a complete analysis of that building's structure and materials. These will reveal information on the physical changes that the building has experienced through its history.

The buildings in Fairmount Park are a rich and vital resource for the park and the public. It is unfortunate that so many of them are under-utilized and poorly maintained. Attempting to manage many structures in a large and diverse area such as Fairmount Park is difficult. The policy at this point is to deal with each building as an isolated entity, solving the problems generated by each building as they occur. In order to

generate funds and support to maintain all of the structures, it is suggested that a master plan be developed which examines the buildings and their environs as a whole. The historical background, present physical condition and use of all the buildings needs to be documented. Then the area in which each building stands needs to be studied to determine how this section of the park is used by the public and what is needed to accommodate the public's needs. A list can be generated as to what is needed in this area. The list may contain: bathrooms, information center, ranger stations, bike and boat rental, concession stands, stables, restaurant, house museum, nature center. Once this list is compiled it can then be used to determine a use for particular buildings, taking into account the building's historical background and structural alterations. With information in hand a policy can be developed on how to improve both the park and the structures within it. Once generated the master plan can then be used to generate funds from the public and private sector.

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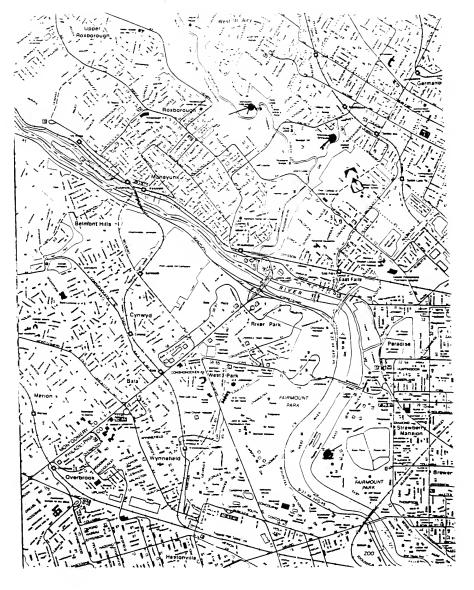
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<u>Appendia #1</u> Site Locations





sample Locations for Each Building.

Sample Sites for the Monastery. Explanation of Code, ie. 1-M-M: this means the first mortar sample from the Monastery. 1-M-P is the first paint sample taken from the Monastery. All sample sites are plotted on floor plans or elevations.

Written description of sample sites taken from the Monastery.

1-M-M: Exterior southeast wall of kitchen wing. 2-M-M: Exterior southeast wall of main building, west corner, ribbon pointing found beneath stucco. 3-M-M: Exterior southeast wall of kitchen wing mortar sample taken beneath 1-M-M. 4-M-M: Exterior southeast wall of main building, west corner, mortar sample from beneath ribbon pointing 2-M-M. 5-M-M: Exterior southeast wall of main building, west corner, deep mortar sample from beneath 4-M-M. 6-M-M: Exterior northwest wall, east corner on main building pointing found beneath 6-M-M-S. 6-M-M-S: Exterior northwest wall, east corner on main building surface stucco. 7-M-M: Exterior southwest wall main building, 20th century stucco. 8-M-M: Exterior southwest wall main building. Deep mortar sample from where 20th-century door was introduced into the wall. 9-M-M: Exterior northwest wall, kitchen wing, west corner mortar sample. 10-M-M: Exterior northwest wall, east corner of main building, deep mortar sample beneath 6-M-M. 11-M-M: Interior, center of northwest wall kitchen wing, mortar and plaster sample from between beams right below the ceiling. 12-M-M: Interior northeast wall kitchen wing, mortar sample from above window in loft. 13-M-M: Interior, crawl space above modern kitchen. Originally the northeast wall of main building now enclosed in the crawl space. Morter sample a. White pointing mortar. b. yellow mortar beneath the white pointing. 14-M-M: Interior, crawl space above modern kitchen, originally the southeast wall of kitchen. Mortar sample. 15-M-M: Interior west room or music room, southwest wall mortar and plaster sample beneath 18-M-M. 16-M-M: Interior, northwest wall of parlor above door from the entry to the parlor. Top plaster layer over 20-M-M and 21-M-M. 17-M-M: Interior, northwest wall of parlor. Mortar sample taken

18-M-M: Interior, southwest wall of music room, top plaster sample above 15-M-M.
19-M-M: Interior northeast wall music room, mortar sample just below ceiling center of the wall.
20-M-M: Interior: northwest wall parlor above door from the entry to the parlor, plaster layer between 16-M-M and 21-M-M.
21-M-M: Interior, northwest wall parlor above the door from the

from the stone wall exposed by the removal of door molding.

entry to the parlor, brown coat beneath 20-M-M.

Monastery Paint Samples

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1-M-P: Exterior, northwest wall, paint sample from east side
shutter center window.
2-M-P: Exterior, northeast wall, kitchen wing first floor
window lintel.
3-M-P: Exterior, northwest wall, kitchen wing, east window.
4-M-P: Exterior, southeast wall main building, west corner,
paint sample from on top of stucco see 2-M-M.
5-M-P: Exterior, northwest wall, kitchen wing, west corner, white
wash sample.
6-M-P: Exterior, northwest wall, main building, east corner,
white wash layer between 6-M-M and 6-M-M-S, Stucco-white wash-
mortar.
7-M-P: Exterior: southeast wall, west corner, main building.
Paint on ribbon pointing, white wash-stucco-paint-ribbon pointing
mortar, see 4-M-M and 5-M-M, and 4-M-P.
8-M-P: Interior: northwest wall, kitchen wing, center of wall
beneath ceiling. Mortar plaster and paint sample beneath a later
mortar and plaster coat.
9-M-P: Interior, northeast wall, kitchen wing, paint sample
from fireplace mantle.
10-M-P: Interior, northeast wall, kitchen wing, paint sample
from wall above fireplace mantle.
11-M-P: Interior, whitewash from kitchen wing beams.
12-M-P: Interior: Northwest wall, kitchen wing, white wash layer
over 11-M-M.
13-M-P: Interior: Northeast wall, kitchen wing, paint sample
 from door to loft.
14-M-P: Interior: Northwest wall, kitchen wing, wall paint sample
 from center of the wall four feet above the floor.
 15-M-P: Interior, southwest wall, kitchen wing, door jamb, door
 way from kitchen to entry.
 16-M-M: Interior: Northeast wall kitchen wing, paint sample from
 on top of 12-M-M. Loft space, below window.
 17-M-P: Interior: Northeast wall. Kitchen wing, white wash
 sample from stair to loft.
 18-M-P: Interior, Northwest wall, main building, music room, paint
 sample, west corner wall.
 19-M-P: Interior, northwest wall, main building, music room,
 window molding.
 20-M-P: Interior, southwest wall, music room, second paint layer
 found beneath plaster layer 18-M-M. On top of 15-M-M.
 21-M-P: Interior, Southwest wall, main building, music room.
 door way moulding to exterior.
 22-M-P: Interior, Southwest wall, main building music room,
 paint sample from wall over fireplace mantle.
 23-M-P: Interior, Northeast wall main building, music room,
 paint sample from center wall just below the ceiling.
 24-M-P: Interior, Northeast wall, door way to entry from music room. Molding of the door way.
 25:
 26-M-P: Interior southeast wall parlor, doorway moulding,
 doorway from entry to parlor.
 27-M-P: Interior, southwest wall, main building, music room,
  paint from fire place mantle.
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Sample Sites for Rockland Mortar

1-Ro-M: Exterior, East side, Rubble dash stucco beneath the north window. 2-Ro-M: Exterior, East side, layer of stucco beneath the rubble dash stucco 6-Ro-M. Under north window. 3-Ro-M: Interior, West wall of stair way into basement. 4-Ro-M: Interior, third floor. Plaster sample from underneath the stairs to the roof. 5-Ro-M: Interior, dining room, south side, ceiling. Plaster sample. 6-Ro-M: Exterior, east side, rubble dash stucco underneath 1-Ro-M. Under north window. Paint 1-Ro-P: Interior, paint sample from stair baseboard final. 2-Ro-P: Interior, South side dining room, ceiling paint sample. 3-Ro-P: Interior, South side paint sample from ceiling in dining room. 4-Ro-P: Interior, West side wall south section, paint sample one foot from ceiling 5-Ro-P: Interior, second floor paint sample above chair rail. 6-Ro-P: Interior, first floor entry, paint sample of trim around 7-Ro-P: Exterior, east side, paint samples from porch columns. 8-Ro-P: Interior, south side of dining room, paint sample from rosettes on ceiling. 9-Ro-P: Interior, west wall, northwest corner, paint sample from below the chair rail. 10-Ro-P: Interior, east side, entry, wall paper sample. 11-Ro-P: Interior, east Side, entry, paint sample. 12-Ro-P: Interior, stairway wall second floor above chair rail. 13-Ro-P: Interior, doorway between entry and dining room, paint sample from molding. 14-Ro-P: Interior, stairway wall, second floor below the chair

206 Lincoln Drive

rail.

Mortar

1-Ri-M: Exterior, south face, Victorian addition, white coat of stucco.

2-Ri-M: Interior, plaster sample from the third floor above the door which leads to the west side room.

3-Ri-M: Interior, mortar and plaster sample from fireplace chimney stack in the west room.

4-Ri-P: Interior, mortar sample west side of basement wall.

5-Ri-P: Interior, plaster sample from the ceiling above the stairs on the third floor.

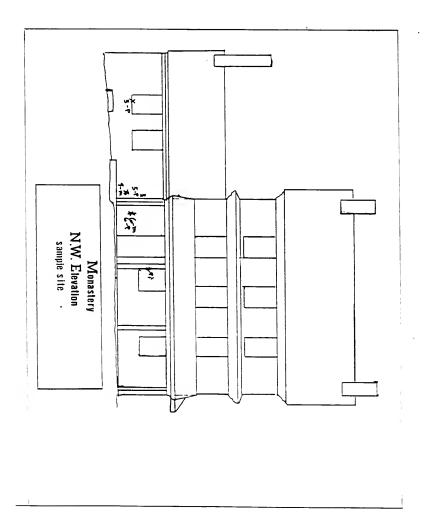
Paint

1-Ri-P: Interior, second floor south side, doorjamb, on door way leading from the stiarway to the west side room. 2-Ri-P: Interior, third floor, south side, door jamb, on the door way leading from the stairway to the west side room.

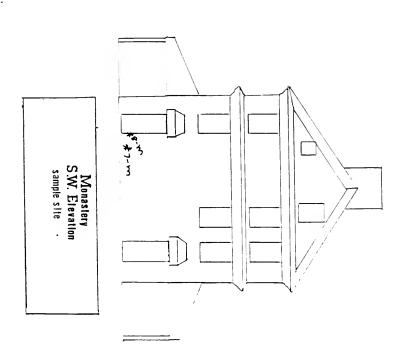
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3-Ri-P: Interior: east wall in the living room southeast window lintel.
4-Ri-P: Interior: doorway from living room to stairway/entry.
Sample taken from entry side of moulding.
5-Ri-P. Interior: third floor, west room ceiling paint and plaster.
6-Ri-P: Interior, west wall. West room second floor southwest corner.
7-Ri-P: Interior, First floor kitchen opposite entry door on wooden partition.
8-Ri-P: Exterior, east wall, southeast window lintel and shutter.
9-Ri-P: Exterior. South wall, Victorian wing southeast window.
10-Ri-P: Exterior. South wall, Victorian wing entry door moulding.
12-Ri-P: Exterior. South wall, Wictorian wing entry door moulding.
12-Ri-P: Exterior. South wall, West section, 4th window from the east.
13-Ri-P: Interior, south wall, dining room, west window lintel.
14-Ri-P: Interior, south wall, dining room, southwest
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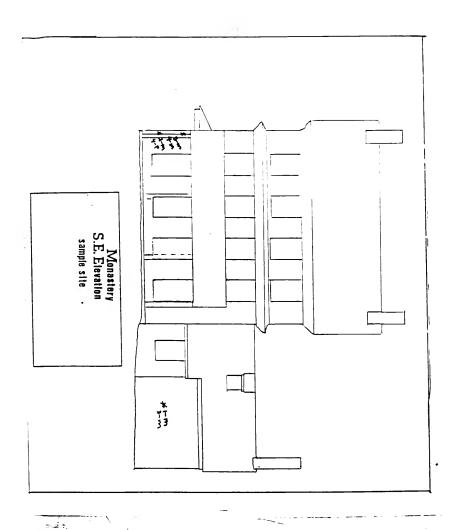
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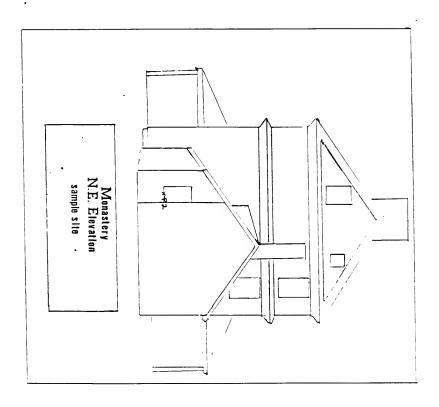
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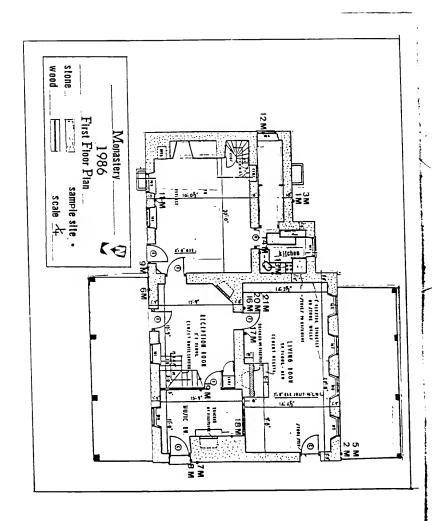


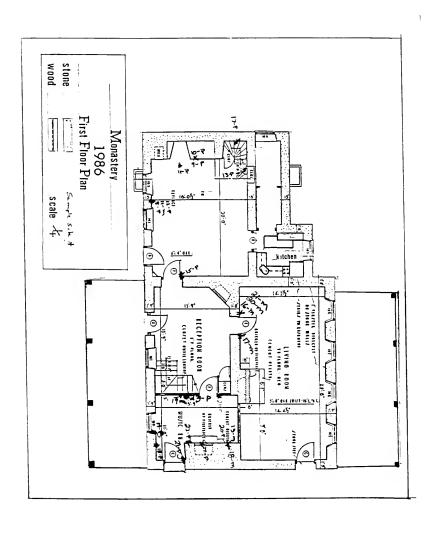


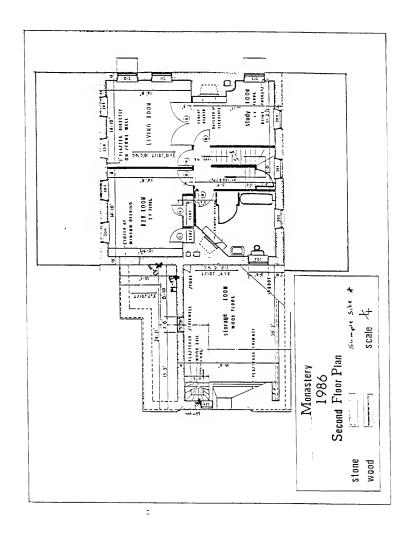




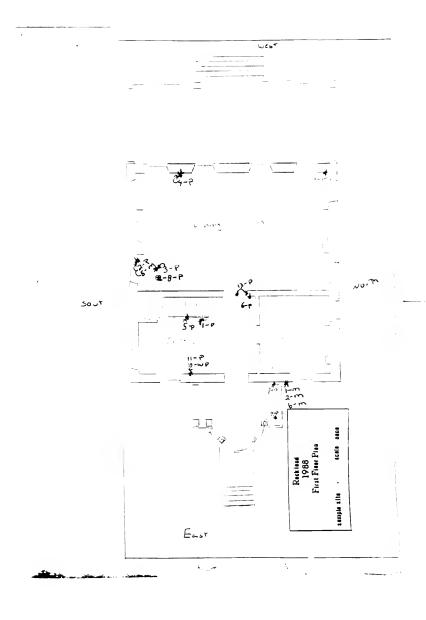


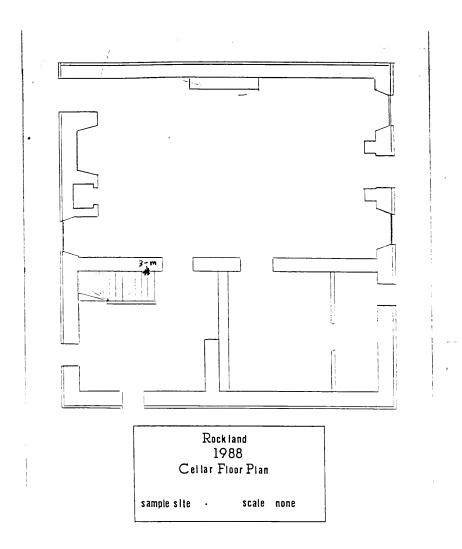


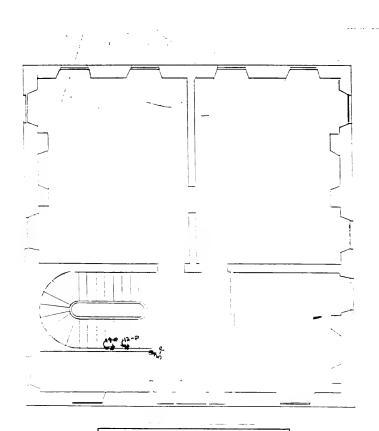








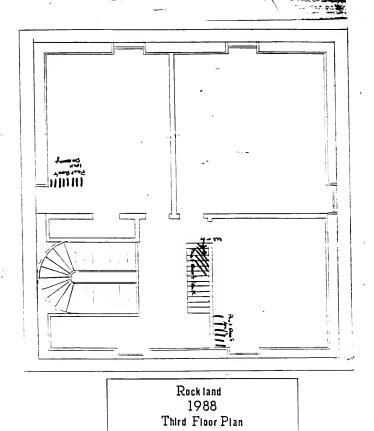




Rockland 1988 Second Floor Plan

sample site

scale none

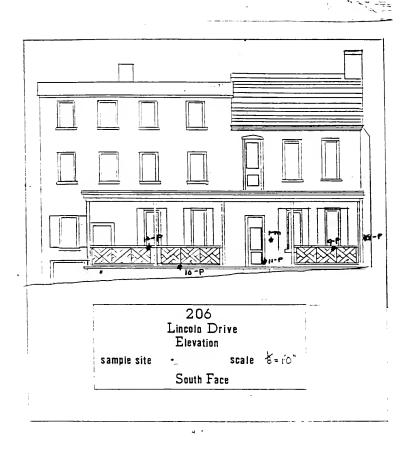


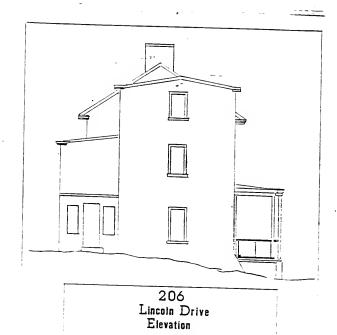
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sample site

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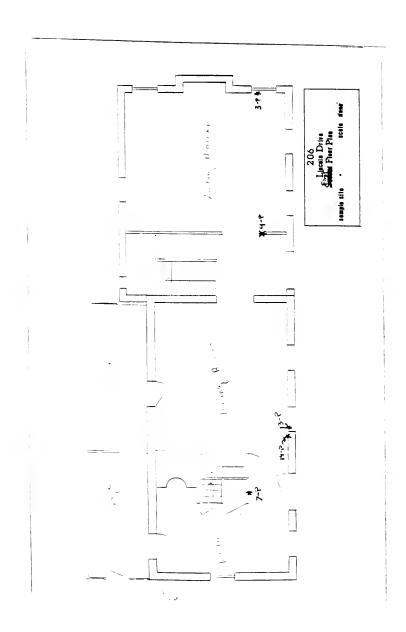


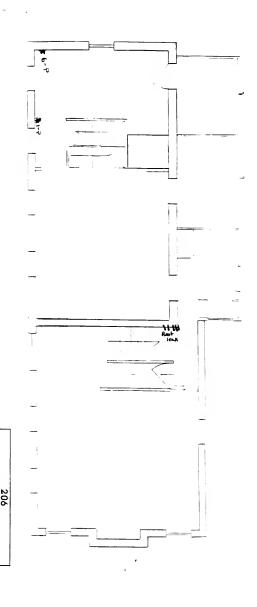


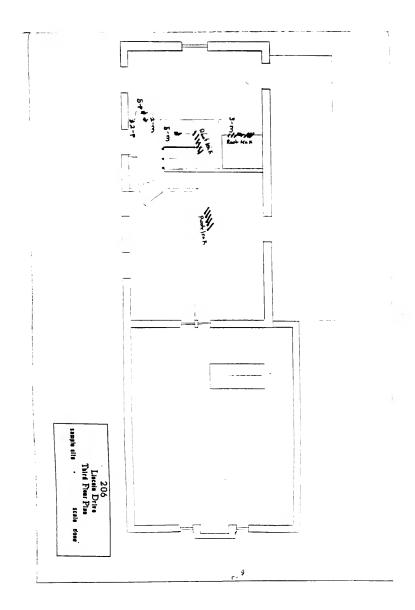
West Face

scale &= io"

sample site







#PRENDLY #3 Chemical Test for Paint analysis List of Pigments With Chemical Names

The chemical test used in this study are from:

Gettens. Putherford J. and George L. Stout. "The Stage Microscope in Routine Examination of Faintings" Technical Studies. vol. IV, No. 4, April. 1936.

Fiesters, Jovce. "Cross-section and Chemical Analysis of Gaint Jampies" In: <u>Studies in Conservacion</u> Vol. ...
No. 7. April 1957. pp.110-195.

JOYCE PLESTERS

Cross-sections and Chemical Analysis of Paint Samples

Received 30/1/56

TABLES FOR IDENTIFICATION OF PIGMENTS Pages 134-155

N.B. A dash '—' under solubilities indicates that there is no visible effect after a few minutes' immersion in the reagent.

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		Joyce Plesters
	Specific tests	(i) Disadves in excess annuturing probleting a teep munia complex. In these solution of copper amounts complex. It along at the challing of pigueut in 11cl or 11kt; pigueut in 11kt; pigueut in 11cl or 11kt; pigueut in 11cl or 11kt; pigueut in in water) is added. An onge-change-
j.	Liffeet of heat	Mack residue of copper oxide CuO.
	11NO ₃ (concentrated)	Very soluble, with effer versure of CO ₂ to give a pale blue solution.
Solubilities	HO NOIL	Slow hydro- lysis rakes formation by black CnO on the surface of the pigment particle.
	JN HCI	Very subble, with effer vercence of CO ₁ to give a greet solution.
Appensance under	low magnification	Bright, sightly greenit blue crytalline fragment of grant in sice regular in sice and slape.
Oright, or date	of invention	Natural utheral utheral very carly times.
Chemical	Composition	Hade copper calbonate, aCu(OII) _b .
	Pigment	Azunite (mountain blue, blue verditer).



Cross-sections and Chemical Analysis of Paint Samples

As above.	Test for hydrogen sulplide evolved on treatment with hydrocalhoric acid. (i) Sodimu-axide/holine teagent. A drup of dilute acid is added to the pignent folioned by adrop of the cast in added to the pignent folione axide/holme reagent (i Bredinan aride) Bluddes to finitegate rice to the unfare and the orange colour of the reagent fades if indplides in present (it reagent fades if indplides in the blackening of lead scetare or sodium plumble paper.) or of a bright aibret wire disperging into the deop. The resemblide covered with a glass covertilly to prevent excape of the II ₂ S.
As above.	
As above.	Reacts quite slowly, the colour changing to pale yellow.
As above.	
As above.	Heconics white and an efferver- ever of H ₁ S is produced (this can often be de- tected by anell).
prepared sub- from ded and attine for Axi- from particles attine for Axi- from particles from its recipes for its manu- facture are given from niedieval finiex onwardh	Clear, often slightly pumplish blue crystalline particles of freeg ular size and stanger. A few canger of principle of pri
An antificially prepared sub- atione for Azu- rite; recipes for its manu- facture are given from medieval tinnes onwards	From the three mineral Lapia Lapia Lapia Lapia Lapia Lapia Meleki ocenza while his ocenza will collegate and iron pyrites.
Basic cupper carbonate, a Cin(OII) _k	A complex compound of sedima of sedima ilitate and information ilitate and sedima ilitate and sedima ilitate and sedima of sedima ilitate and sedima of sedima ilitate approximation ilitate approxima
Mue bico	Ultranatine, natural.



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	T SURVE
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Survific Texts		Atabove.	The pigment can be got hat or addition by beating in a platinian grown with sodium fluoride and a drop of contentrated anybusing and a drop of water untally gives a fairly park sobrion. This solution in this solution in this solution in the solution of a fairly fluoride and for teast for Co.** work a mary he used for teast for Co.** work a mirrors \(\theta\)-park for \(\theta\)-park
Effect of hear		l	Kelts at high temperatures.
	(concentrated)	In tamplet caranined in the National Gal- Rey, autificial ultramarine seems to be attacked more rapidly. This does not seem to be whelly disc. Not on the particular particular properties of the artificial priperionent had become wholly pale yellow in less than half an less than hal	ı
Solubilities	IIO'N N	As above.	l
	JN IICI	As above.	ı
	for megnification	Untally maller and note rounded pigment grain that duse over, there are few columies few columies over, there are few columies over, there are few columies over, there are few columies over there are few columies over, there are few columies over the are few columie	By transsited light, smally a rather pale blue. Very classettie tie, glass practerisment, often very coaste.
	Origin, of date	Manufacture first discovered by Guinet in 1828.	Manufactured. Eilwer Eilwer reports it to be usenlinned first in 1584.
	Camposition	At above but opproximate formula Si, Cir. Si, Cir. Si, Cir. Si, Cir. Si, Cir. Si, Cir. Cir. Cir. Cir. Cir. Cir. Cir. Cir.	A potassium silicate glass colonice glass with robalt oxide.
	Pigment	Ultramarine artificial.	Smalt A potasium Namufactured By transferred (17) high coloured blus Eibner (17) high coloured blus reports it to be rather with robalt mentioned Very oaide.

Cross-sea	: nions and Chemical Analysis of Pai	nt Samples
there orange-red aport appears in the center. (If the presence drops of a 10% solution of the first in impected a few drops of a 10% solution of tripodium plupphase drops be added to the text drop as the part. Gerie phosphase does put. Gerie phosphase does (i) Text for Co ¹³ with enbesuic a kit. A post of the text adultion on filer paper is held over ammonia and then a drop of reagent (1% in exhanol) and canage-brown post in formed (if Co ¹³ is also present this gives a greenish- black spot in the center of the black apost in the center of the orange colour due to Co ¹³).	(i) Salathe in chloroform giving a deep blue solution, and partially soluthe in white spiring a pinkid-mauve rolution. (ii) Meathed by sodium hypox hlorite solution.	(i) If sufficient plement he present it may be re-formed after being lowwerd by MAOH by addition of execus hydroxide racid. (ii) The precipitate offertic hydroxide formed by treatment with NAOH may be fined by addition of a few dropy of annountium this synate soften. A red colount is product. Where it is family in the concentrated by addition of a few dropy of annountium this synate soften. A red colount is product. Where it is family in the concentrated by adding a few of eiler or a myl acctate to the solution; either of which when a spoot plate.
	With gentle heat arbitines with a purple with a purple stoompoore decompoore giving a brown distiller, dark funter and a characteriale muell.	Changer to a golden brown polden brown lene oaslef still keeping its finely powdered form.
	Decomposes to a dark brown precipitate.	- · · · · · · · · · · · · · · · · · · ·
	Slowly turns brown on pro- longed inner- sion and parily disolver.	Goes into solu- tion with pre- cipitation of orange- brown feri- hydroxide.
	Slowly turns brown on pro- longed inmertion, and parily dis- solves.	1
	Very dark blue, and of very fine partick after. The dyeard feems to gain oil films.	Very dark blue and of very fine partiele site. By transmitted light lti green-blue.
	A blue dye Then a plant The plant con- taint a gluco- taint a gruto- taint a grut	A synthetic pignetar in- vented by Dierbach in 1704.

Ferric Ferrocyanide Fe₁[Fe(CN)₃], (or a closely related contpound).

Prusian Blue (Berlin Blue, Paris Blue, Antwerp Blue, Chiucue Blue).

The pure synthetic product and the principal constitnent of the natural dyc is:

Indigo

Joyce Plesters

		100	Americance make		Selubilities		Liffert of hear	Society res
Pigment	Chembat Campathian	of incution		IOII NE	HOW N	HNO ₃ (concentrated)		
Codolt Blue (Théasta's Blue).	Colast alu- minate, CaO : M, O,	A symbotic pigment discovered by Theard in 1802.	Pure blue rounded par- ticles, moder- acy fine and of irregular size. Hight blue by transmite light	1	1	l	1	The pagment may be got into solution by fusion in a plantium spoon with editer solution persulphate or a max- ture of solution rationate and solution peroxide. The used in extracted with dilute mirro- given under 'Stost' can be arried unt on the solution. Al'11 may be precipitated as Al(4011), from the solution by addition of solution by thouside.
Condem Illuc.	Cabaleuus stanuate, CaO , uSmO ₃	A symbotic pigment as a solution of a solution of a solution of company in the county but not of a solution of a s	Green-blue, fundy divided, fundy divided, particles.	1	1	Sufficiently southly, with the state of the souther, with the state blue solution.	1	The rear for Cost men- tioned under Small may be applied to the solution in native and, or if the specimic is not sufficiently soluble, to the solution obtained by the finion treament dearrhed major Cobalt blue.
GREEN PICARENTS. Circu Eath (terre verte).	Variable in composition; a complex by demical by demical of Fe, Mg, Al and K. The green colour is caused by a small amount of Fe 1.	Known from cadicst tines as a natural mineral.	Usually coase crystalline par- ticles of a rabler blue-great and inged with lawan Colour- less particles really present also.	Partially soluble to give a pale greenish solution.	Partially solution in the tra give a greenist grey ppt. of ppt. of ppt. of credit beccome brown on standing.	Soluble, giving a reddidt solu- tion.	Gradually turns golden brown.	(i) Tests for the presence of Fe11 may be carried out on the solution of the Pike ment in cone. HCl: (a) K _A He (CIN _A) gives Pravion blue. (b) KCNS gives red ferrie that solution of the Pike in the (ii) Tests for Fe11 in the presence of Fe11 in



Cross-sections and Chemical Analysis of Paint Sample

	Cross-sections and	Chemical Analysis of Paint Samp	oles
(b) A storp of the acid test plate included on a spot plate incl with parafin wax. The yellow let 1: substitut in sectorizated by adding a cry- sal or two of potantou flamide (Fe-11 - K, Fe F). A drop of a-a'-dipytidy tes- agent (26 inclinated is added). Fe 1 produces a pink colora- tion.	The solution in a id may be used for the tens for couper descrited under 'Armite' (see 'Hine Pigments').	(i) The tests for Cut ¹⁴ described under 'Azurite' may be carried on on the solution of the pigment in dil. HCL, or HMO ₂ . (ii) Test for accrate: (ii) Test for accrate: (ii) Test for accrate: (ii) Warming with dil. (iii) Warming with dil. (iv) Marming with dil. (iv) Marming with dil. (iv) Marming with dil. (iv) Addition of silver mitte, obtained to a solution of the pigment in HMO ₂ produce a colution of the pigment in HMO ₂ produce a white ppti. of allver accrate.	The solution in acid usually contains audicient Cat't for the tests little under the tests little Pigment') in be carried out.
	Hack residue of CuO.	Gives off a med of actic act on warming (wapour turn Universal Indiano paper red). Further verta into black CarO.	The rein una- ally gives off a characteristic cristous mellin on warming, mels and be- coure brown. Franky is in crombusible black reinbee of CarO remnin.
	Soluble with efferverence of CO ₂ , giving a blue solution.	Soluble giving a green solution	Schuble, giving a brown solu- tion.
	Unaffected in the cold but on warming, the particles partially disparally dispared particles particles particles particles and particles and they become coated with black CuO.	Soluble, giving a pale blue put. of copper by- do axide which turns black on builing.	Diningrated, the resinous component being displaced, and pale blue copper by copper by precipitated.
	Soluble with effer- repence of CO _g giving a green solution.	Solutic giving a green solution.	Party soluble giving a solution of Cucli.
	Crytalline frag- ments, a rather pale, blue-green in colour.	Clear blue-green crystal, unne- times palmine needes. Colour alen very strong.	Clear rather fieldly prepared or in good pre- servation; when decayed becomes brown. On pre- brown, on pre- inition in some- times nits on pre- ting and with cor licitage on give an opaque vellow-green.
	Known from carliest times and a all color mineral color occura in con- junction with azunite, 4 v.	Prepared from ancent times ancent times copper with vinegar.	Laurie [1] have found this type of paint on illu- minated manu- scripts daing from the 8th century.
	A basic cupper carbonate, CuCO1, Cu(OH),	Untally the distance opport acetaric. Cu(CH4COO), 2Cu (OH).	Not strictly a pignette. A champarent green vannish is formed if a copper ash is dissolved in a venic subject to the control of the control o
	Malachite (nonntain Breen).	Verligris	Transparent copper green.

Joyce Plesters

GREEN PIGNENTS (Could.)

	Chemical	Origin, or dute			Solubilities		Effect of heat	Specific 1931
Ligment	Campotition	of Inecution		JN HCI	HOW N	(concentrated)		
Cabal Gren (Rimmann's green, zinc green).	A compound of robal oxide and zinc naide of rather in- the family from the control of rather in- partient of a small pro- portion of CnO to ZnO.	A symbolic pigurent discussed by Hansam in 1780, but und used as a pigurent und the mineteenth century.	Fine regular rounded par- firlet, palec blue- flected light, but pure green by transmitted light	Slightly soluble on healing, and more so with core. HCL giving opple pink solution.	1	Stowly soluble with heating to give a pale blue solution.	I	(i) Text for Co ¹¹ line Pig- moder Smalt ('lline Pig- ment) may be made on the admin of the pigment in miric acid. (ii) Text for Zn ¹¹ with didiazone. 1 deep of the text solution on a spot place is made also line with an NAOH, a few flow of distance solution on a spot place is made also line with an NAOH, a few flow of distance solution (to mg in a added. The subminion is attered and the Co ₁ evaparated by bloowing. A rapherty ted dolution (inde- pending the place of the evaparated by bloowing. A rapherty ted dolution (inde- pending the place of the test in appectif. for Zn in alkaline adminion).
Chromium Oxide Green, qpapue.	Antrydeous Cleromie Oxide, Cr ₂ O ₂ .	Vanquelin, the discoverer of chromium, may gener of chromium, may gener of in cramic of cramic of the cramic of th	Ratter dull oive green opaque granufer, uwally ratter erase; fight effactive index.	1	I	ı	1	The pigurent can be got mine solution by fining with a mine solution by fining with a martine of solution cabusate and solution provide on a platinum spown and dissolving the med in a drops of courc. It, SO. The chronium good martines described the solution of the solution on a spen glate are added 1-10 a drops of the solution on a spen glate are added 1-3 dishery/stabaside in eagled 1-3 dishery/stabaside in eagled 1-3 dishery/stabaside in eagled 1-3 dishery/stabaside in eagled 1-3 dishery/stabaside in ended in the solution of the solut



		, ,
(ii) Addinion of a drop of Agron of the white for an a spot plate of filter paper gives a brick red ppt. of silver chomate. (iii) I cod acetaic solution gives a yellow put. of PleTiCle, solution in INO.	As above.	(i) Tests for CrO ₁ Bited under 'Chromium oxide green-opaque' may be made on the sample created with acid. (ii) Tests for Pb+* may be made inder the same conditions (these rest are listed conder 'Lead White') see 'White Pigurent and hertt.' (iii) See 'Prusian Illue' ('Illue Pigurents') for tests for this pigurent.
	ı	Turn yellow- brown owing to the forma- tion of ferric oxide.
	I	Partly soluble; the kad chro- mate distolver to gives yellow solution, the Funsian blue remains un- changed.
	l	The Prussian blue is displayed with polar with polar of or angebrown ferrit bydox-lide, so that the colour of the sample changes from green to brownish yellow.
	-	The lead chroni- are is dissolved with ppfu. of white fead chronian lablue is medanged, as that the colour of the sample rhanges from green to blue.
	hrilliant some- what blue-green colour, patticke untally large, ir- getales, dightly counded, and ex- parent. Refract ive index it lower than dat of the opaque oxide,	Calour varies from grass green to blue-green. (The hatte known as Cinia- bar green J'The hand and yellow paritées as con- often not divin- guilable since flue fronsina blue seems to cost the yellow particles.
	Symbotic pig- ment for pre- pared for pre- Pameticr in 1636. [Sec Charch (30).]	Clume Veltow was described by Auquelin in 1809, so diat the first manu- facture of chrune green must be afer this date.
	Framparent Indenna uside of Citeonium Cr,O ₃ , 2H,O.	A mixture of Prusian blue, Fralle (CN), by which shoone yellow, i.e. lead chromate Pb CrO,.
_	Viidian (Caigaet's green).	Chrome Green (Cimabar Green).



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ites Sreedje tent		Soluble with Soluble giving CuO. The Cuntration of a blue solution. CuO. The pale blue ppt. of Cu(OH). of Cu(OH). of Cu(OH). ii) Tens fan An: (i) Ten fan An: (ii) Tens fan An: (ii) Tens fan An: (iii) Tens fan Instant of the tens to two of ammonia and of the tens and of the tense and tense an	c. As above. As above.
Solubilities	N IICI +N	Soluble giving a forming green solution. pale of (A above, but an A above, admixt colouders admixen.
	Appendice unact	Bright lime- green irregularly green varying inze. Rather opaque.	Distinctive Arabow herliant bluide almost or green, mail solution to mail solution to mail solution to appearance of permitted for quarteful in the probably ownig to a dependent in their probably ownig to a dependent in their pression in their
	Origin, or date /	A synthetic pigatent in- pigatent in- vented by 5 Scheek in 1778.	A synthetic pignout first made at Schweisfut, German, in
	Composition	Copper- Col Mayor (Control of the Control of the Co	Copper actionary Col(Cil), COO), JCu(AID),
	Pigment	Scheele's Green.	Emerald Green Galweinfur Green, Part Green, Veronere Green,



Cross-sections and Chemical Analysis of Paint Samples

(Cinnabar).	Red mercuric sulphide, 11g.S.	Occur at a marted mineral cinnels, but has been you thesired from early times.	Very deep red light. Pignessided light. Pignessides and crystal-linky year; linky year; linke vanicies are not distinct vanicies are not distinct guishable.	1	1	eduble.	No change a unoferate ten- perantes but sublines at \$80° C.	(i) Test for Hg U; The pignest may be dis- solved in a platimum spoon by repeated iterative with bot HU; The reighest relis- solved in a drop of till HNO, a drop in this solution is placed on filter paper in- pregnated with freshly pre- pergnated with freshly pre- agent (i % in chand). A violet-thus flex indicates Hg U; (ii) Test for Sulphike; (ii) Test for Sulphike; (iii) Test for Sulphike; (iv) the solid pignest is placed a drop of sodium aritle/fordine reagent. Blubblet of gas (nitrogen) itse to the nurface if sulphible is present and the yellow colour of the reagent fade.
tron oxide reds folder ochte, folder ochte, Veneriau red, light red, light red, light red, red, etc.).	from oxide, cicker subby- cicker subby- or hydrated Fe ₃ O ₂ at I ₄ O	Occur widely as usual business, and usual business, and antificially flow could be as a colours.	Some varieties (e.g. haematie) are trampatent and red by transmitted by light. Others are quie epaque. It is difficult to dustinguish the antificial varieties from the tatural.	Some specimens are sliggistly sul- uble.		Parity soluble.	1	The pignient is soluble in concentrated HCL giving a yellow folding a Test for Fev.: (i) Potassium ferror yamide gives a pate, of themsian blue, (ii) Potassium this yamide gives a blood red coloration.
Red lead (minimu).	Lead tetroxide. Pb _s O _s .	Orange-red, finely divided, may be ery- stalline or amorphous.	Antifeally made, but known from antiputy.	Disobes with ppu, of white PSCJr.		A brown ppt. of lead dioxidc is formed.	1	Tests for Pb on solu, in INO ₂ ; (i) 1 drop of dil, 11Cl and (i) 1 drop of M solution gives a yellow patt, of Pbl., which after warning recrystallizes in golden 'spangles'. (ii) 1 drop of dil 11Cl plus i drop of K-6.2O ₄ soluton gives a yellow ppit, of PbC:O ₂ .

HED AND VIOLEE PICMENTS

			1		Solubilities		Liffert of heat	Specific ferra
Pigment	Cheminal temposition	Origin, of thick of invention	low megaifustion	JN HCI	HON NA	(concentrated)	i di	
Dragon's blood	A natural rrsin (for rhemical com- pusition see Rushritson and Whalley [31])	Frans a tree in East Asia; known in medieval times (See Thompson [31]).	Dark red by re- fleried light but eksa orauge-red ky transmitted light.	Party soluble, giving a yellow solution.	Pattially dis- solves to au orange-red mebid solu- tion.	Disinegrater to a dark brown 111235.	Melts then evolves benzoic acid (characteristic annell). See Gettens and Stout [46].	Soluble in atrolod, benzene and chlorofonu to give bright red solutions.
Madder I ake (Crimson: madder).	A mixture of two hydroxy- anthrapainous- gystudi, all- zazin and pur- purin, mor- purin, mor- bac which is musly Al(O1) ₃ .	Extracted from the root of the madder plant.	Usually a very fine prover; crimon red in colour, in oil film the separate particular continue of the transing to the transing to the transing to the transing to the transition of the Al(OII).	The Al(O1), party disables and the colour of the pigurent becounts more course more counts unore	Soluble, giv- ing a purplish achtion.	Decomposer to a dark brown tolution.	Colour clauges to purple hrown, then hrown, then finally only a pale grey ash of AlsC _a cenains.	(i) Test for the dyestuff. (i) On addition of excess the ILSO, the AI(O1), base is dassolved and a fleeculent part of the dyestuff fermed, to range in colour. (i) Natural marker laber owing to it colour. (ii) Natural marker laber owing to the presence of purion of the presence of purion of the presence of purion of the fragment in treated with NaO11 which Marm rengent: (iii) Tes for AI(O1), with Marm rengent: (iii) The paint fragment in treated with NaO11 which Marm rengent: (iii) The paint fragment in treated with NaO11 which and the AI(O1), it doup of the medium in metabound) it placed on filter paper and dread. I drop of the test and dread. I drop and the paper against in a.v., A bank test allound be done with the respective.
Alizariu Ginsson.	A single hydroxy- andrzapinoue dyestuff, ali- zarin, on a base of Al(OH)s.	Synthesized for the first time in 1868 by Grache and Leberman.	As almore.	As above.	As above.	As above.	As above.	As alove, except that in the case of test (i) (b), the absence of purparity means that there is no fluorescence under u.v. light.

Sce above.	(i) Tess for Ca listed under Smalf (see Thise pageners) can be made on the adminent in a quarteglar. (ii) Tess for Phosphate; (ii) Tess for Phosphate; Ack grains of pigners are place on filter paper, announting maly blace and managing madeline and announting with a drop of managine and pageners and announting to place or choride in to mil. cane, acute acid, then distinct with water to rout!, the to allow or NIIs. A builliant his added and the moist facts had over NIIs. A builliant blace colour forms around the annule.	Tests for Cott; (i) As above. (ii) Test for Atenate; see test maker Scheele! Greut (Green Pigment).	Test for Mus. In sample of pigment is mixed with solid. Pay, CO3, and parassium nitrite (KNO ₃) and discount nitrite (KNO ₃) and green man of a bail manganese in formed. This is soluble in ware, and on standing is oxidized to purple alkali premanganate.
As above.	I	l	Grevish residue.
Sec above.	Sourcewhat soluble.	1	1
As above.	l	i	Back pptt. of MuOr.
As above.		1	On heating grad- trally turns black with evolution of Cl _p .
As alvive, but a did brownish or purplish red.	in terrular particles to the control of the control	As above.	Rounded gran- ules of rather irregular rise, by geller red-violet by reflected light, but pale trans- parent manye by
See almive.	Preparation Bysniked in Bysniked in Salveiat.	Appeared alunit 1880 (see Eibner [27]).	Finion product Prepared first of management by E. Leykauf district and anneonium plucyhate.
Madder or alizarin charred by beating.	Anhydrous cabalt plan- tragge C. Cag (P.O.)).	Anliydrous cribah arsenate, Co ₂ (AsO ₄)s-	Finion product of manganese divinic and annionium phosphate.
Brown Madder (burnt madder)	Colair Violes, dark.	Colait Violet, fight.	Manganese Violet (Nitur- Berg Violet, Permanent Violet).



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		11.0	American		Solubilities			
Pigment	Compatibu	Origin, or date of inreation		N HCI	IIO N N	(concentrated)	Effect of heat	Specific text
Yellow Ochre (Golden Ochre, Man Yellow).	Hydrated iron oxide, Fr.Da. III. III. III. III. III. III. III.	Natural minicrah arc widely dis- tributed, but an artificial yeltowy in also mande.	Usually very anall regular graint, a rather dull golden yellow by re- flected light.	Some samples are slightly toloble, giving a yellow solution of FeCl,	1	Parity roluble, giving a yellow solution.	Turn brown- red on lou of countined water.	Soluble in low concentrated ICC giving a yehrw nolution of FCL, The tent for iron given under Green Earth' (see 'Green Pignents') may be eartied and on thin solution.
Macticut and Lishange.	Principally lead manuside Ph.O. pon lidarge one- ally contains a linte red lead, Ph.O.	Manufatured pigurent from antiquity. antiquity. Anxieut in the mifficult oxide made by whire; little arge in the function of modern to a software or a modern teat. (See Cettens and Stout [24].)	Unally of fine almost amost plous texture. He lead white: Maxicot it has lead white. Pythow, lithage a little most on the presence of red Ph ₂ O ₂ .	Soluble with ppin, of white PLCI.	Soluble on healing 35 sodium plumbite.	Readily soluble.	Unaffected at moderate temmeratures. Changes to red Pb, Q, if heared above 400° C.	The robution in acids may be used to carey out any of the tests for lead given under villed Lead' (see 'Red Pignerit').
Orpiment (King's Yellow)	Yeluw auronic solphide, Ass.	Natural mineral, used from anniquity.	Dright golden yellow; occurs in mall faket or in filrous maser, has a glossy or waxy boding unface.	On leaning goes into robation with evolution of H ₁ S.	Soluble giving sodium area: at and subli- ate and subli- areainer.	Soluble (de- compass to give As and H ₁ SO ₂).	Sublimes, then becomes obour- ket owing to oxidation to the trioxide Als.	(i) Tent for As listed under Scheck's Green' (see 'Green Pigneau's) may be fearned out on the solution in alkal. (ii) Test for Sulphide: The solution articl/fostion feat given to Vernuthon (see Heel Pigneau's) may be made on the solut pigneau.

As above.	(i) Test for Antimony: 1 drop of the adultion of the pignent in HCI is treated with 1 drop of cone. H ₂ SO ₂ on platium fail and a rine filing added, and allowed to and it in contact. The platium dathen with the Zn and Pt in contact. The platium dathen when Sb is present, and the element separate on the platium in place in the platium in place in the degree of the gravens hydride, Sn giver a grey deposit willy.) grey deposit willy.	(i) Teas for Pb11; Thuse fisted under Red Lead (see 'Red Pignuent) may be employed with the acid. The may be found under ('I fromming Note Green, Opeque' (see 'Giere B') ment') and may be carried ment') and may be carried out on the solution of the pignuent in acid.	(i) Tests for B3+*: (a) To a solution of pigment in ICI of INOO, it added 11 NOO, a white pptt. of insoluble B3CO, it formed (b) Thine test gives a pale (g) Thine test gives a pale (ii) Tests for CrO,, see (iii) Tests for CrO,, see Chrome Yellow', above.
Mels at 310°C.	Sublimer with an orange- yellow vapour. Pig Ralia Rali	Lead to the state of the state	
As above.	Soluble.	Soluble giving a yellow solu-	Soluble, giving a yellow solu- tron.
Soluble.	Partially sol.	Soluble giv- ing a yellow solution of alkali chro- mate.	Soluble, giv- ing a yellow solution.
As above.	Partially sol. with Partially sol. white PLCI, ppttd.	Sulubk, with plant of white PloCl, and an orange solution of chronic acid.	Soluble, giving a yellow solution.
Similar to above, but mure orange. By transmitted fight, orange- ted. It has a slightly hower R I, than Oppi- ment.	Very fine gran- uler, like Masi- cod in appear- ante, his diffi- ante, his diffi- gralline form. Golour variet from from to orange- yellow to orange-	Drilliant yellow; par- titel size varies; unaally very fine crystals; rather oqraque.	lly reflected high, bright lemon yellow; by transmitted light, nearly colouries; fine results are structure.
Natural Infineral often sx curring with Orpi-	Manufactured pigneral whose listory is observe. (See Gettern and Stort [34])	Preparation described by Vaugedite in 1809.	As above.
Orange-red arctife sul- phide As ₅ S ₁	l cad anti- mentale, Pb(SbO _s):	Lead chromate Pb CcO ₄	Harium rhromate, BaCrO,
Itealiar.	Naples Yellow (Antimony Yellow).	Cluome Yellow.	Barium Yellow.



(Cionel)
PHEMBNSS
ORANGE
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Survific tests		(i) Tests for Sett; (c) Addition of H ₂ SO ₂ , to the and test drop gives a white pptt, of itself, SSO ₂ . (b) Fame test gives a citizent and fame. (ii) Test for CiO ₂ —: see Chrimmer Yellow. (iii) Test with Sodium Rhodisonate for distinguishing tevesen Barman and Forward Barman and Rhodisonate for distinguishing tevesen Barman and Strondium in Reman yellows: 1 doop of the neutral test solution is spotted on filter paper and I drop of the capter (10.2 doop of the neutral test solution is spotted on filter paper and I drop of the capter and I drop of the capter and I drop of the capter and it drop of the capter due to State Totoppean with drop of dd. (i in 20) HCL, the HM ** Carpet remaining as a bright red aport.	The residue from combus- tion can be dissolved in dil HCl or HNO ₂ and the solu- tion used for tests for Co ¹¹ Bired under 'Smalt' (see 'Blue Figurenta').	(i) Test for Cd1* with dip- p-nitrophs nyk-arbazide: A drap of the test subthina is maxed on a spot plate with a drop of KaxOH (10.%) and of KCN (10.%), a thep of re- agent (0.1.%) at deep of re- agent (0.1.%) at deap of re- pert of the post report of formaldets (40.%). In the presence of Cd1* a blue- geren prut, or colour is formal of the request above
i in the second	to milita	1	When heated strongly, gives black CoO, and oxides of nitrogen.	At high tene- peratures brown CdO is produced.
	UNO, (concentrated)	As above.	Soluble, giving an orange solution.	Solutie, with evolution of 11,5.
Solubilities	HO'N N	As above.	Slightly sol- uble.	l
	IDII NE	As above.	Slightly soluble giving a yellow solution.	Insoluble in the cold, partly soluble on hearing, with evolution of H ₁ S.
Arreatance under	lon magnification	A link stronger yellow than HaCrO, Fincly divided crystallin of necdles.	Small crystals and clusters of crystals, yellow by transmitted light.	Cobour varies from lemmy yel- how to orange, probably a cord- ing to particle wite, the orange orange to a cord by the orange constrat. All the section was a cord to the cord or the orange or the cord orange or the cord or
Oriola at date	of Invention	As ahove.	Discovered by N. W. Fisher In 1848.	A synthetic pigurent pre- pared by ppm for a mineral form exists but there is not even basing been used as a pigurent). Tittle observed by the form week by the form we were the form we were the form we were the form we were the form we we were the form we were
Chemikal	Composition	Streaminn chromate, Sr CrO,	Petassium cebaltimitrie, CoK ₃ (NO ₃), H ₄ O.	Cadmium Sulphide, CdS
	Pigment	Strontium Yellow (Leman Yellow).	Cotati Vellow (Aureolin).	Calmium Sulphide, Cds pigurent pre- pared by plun form cavita form



Party soluble Pearty soluble Party solub	IJ								formaldehyde. The colour dunid be compared with a bank using the reagent only. (ii) Test for Sulpinde: The sodium axide/indine test de- seriled under Vermilion (er 'Red Pigment') can be used with the solid pigment.
Hydrated Natural Hyterflected Silghily soluble, Partly soluble. Colour changes Ilydrated Hight, a galden-brown and Hight, a galden-brown and Fr.Os. 1140. Hight, a galden-brown and Prefected Silghily soluble, Prefected Partly soluble, Part	BROWN AND IM.	ACK PIGMANTS.							
Anitydrons Prepared by Rout of the Frite Oxide, calcining that gains are read-from Natural First Oxide First Oxide Injured Frest Oxide Injured Inj	Raw Sieuna	Hydrated ferrit oxide, Fr.O. 11,O.	Natural mineral.	lly reflected light, a golden-brown; by trausbown; by trausbown; by trausbown; by prantitud light, a mixture of francelowing yellow, rechounts parcial can be seen, at well as well as opque brown one;	Slightly soluble, especially on hearing. (Untally an ablaced or a blaced out with K, Fe (CN),		Partly soluble.	Colour changes to the darker to the darker to the brown of lumr Siema (ree below), the anhydrous oxide.	The pigment will dissolve in his net concerd HCG giving a yellow solution. The tests for how may be carried out me how may be carried out me dissolution which are listed under Green Earth (see 'Green Pigments').
Hydrated Natural Fine darkish As above. Ityda and Fine darkish As above. Ityda and State Oxide Human State Oxide	Durnt Sienna.	Anlydrom Ferric Oxide, Fe,O,.	Prepared by calcining Raw Sienna.	Mont of the grains are reddish brown. No visible crystalline form.	As above.	1	At above.	1	At above.
	Raw Uniber.	liydrated Fretic Oxide Froy, 100 will a propor- tion of Man- gauce dioxide MitO, (front B-16 %)		Fine darkith grains mainly, but some orange, yellow and colounters par- ticles.	As above.	1	As above.	Loss water to become the bands done on the onite Hunt Umber (see below) which is a darker, redder brown.	

HADWN AND ID ACK PICMENTS (COULD.)

			Joyce Plesters	
Cussific feets	norman de la companya	(i) Tests for Fe ¹¹¹ , as for Raw Sientra. (ii) Tests for Mu, as above.	(i) At lean part of the material is soluble in benzene, pertelem ellen and other og anic solvent. (ii) The incombantile residie mailly gives a postuve test for iron (see tests for Fe+++ under Gieen Earth', 'Green Pigments').	Атврокс.
,	Filect of mean	1	An first melts to a black tarry gloud. Derine yellow-brown kunets are then produced, with a pumgent, tarry brown distil- hare collects at the mouth of the 'geniton the 'genit	As above, but kaves rather more incom- bussible residue
	LINO _a (concentrated)	As alave.	Soluble, giving a red-brown solution.	As above.
Solubilities	HOWN N	1	Soluble, giv- ing an orange- brown solu- tion.	As above.
	JN IICI	As above.	1	1
1	low magnification	As above, but a little darker, redder brown in colour, and slightly more transparent.	Dark brown annerphous asid, acmitans-parent and parent and transmitted light. It is partially asidly	As above, but of a more licterogeneous appearance, and any granules of inorganic brown pigurent.
	Origin, of this	Prepared by gently healing Raw Umber.	Hitemen or applatman occur as a occur and occur occu	A mineral deposit sinilar to Lignite.
	Chemical camposition	Anhydrous ferric oxide Fr.O., with a propurtion of manganese dioxide, MnO.	A misture of hydrocarbons with organic and inorganic impurities and of variable of variable (See Campanitum, (See Cathord) [10] and Gettens and Stout [14])	Comitts of as much as 90% of organic matter (hydro rathom similar to those of Himmen), to perfect with tom oxide, alumina, sidea, etc.
	Pigment	Hattat Umber.	Bitumen Mydyskum, mannuny. Siste).	Van Dyck Brown (Cassill Earth, Cologne Earth).



Not песезалу.	(i) For Ca++: (a) The incombanide traidue gives a bright red flane test. (b) The incombanide resi- due is tolouble in diune a sid, but on adding (NHL), CO, in but on adding (NHL), CO, in corners a white pput of CaCO, ii) Test so PO ₂ : The annuconium notyb- dare/beneene test given for dare/beneene test given for Gobbal Violet, dark (see 'Red and Violet Pigment) may be applied to the incombanishe residue.		(i) On teating with dil. 11,502, and exponenting to the residue from dil. HCl gives theractoritic "when- sper theractoritic "when- sper theractoritic" when- sper theractoritic "when- sper theractoritic" when- sper theractoritic "when- sper theractoritic" when- sper theractoritic "shall, O. (ii) A finne test gives the fulliant red colour caused by Ca.
Can be almost completely burnt in air fearch for animate amounts of impurities).	A white residue of calcium altr remains after combustion.		None until very high tem- menperaures when CaO formed.
1	I		Disolves with efferences of CO ₁ .
1	t ·		I
I			Disolves with efference of CO ₁ .
Except for graphic, which in the form of flow graphist, cayab, all the cyanh, all the pignents are pignents are pignents are pignents are monthess us anonplus users. The pattern of the pignent, the pattern of the pigness is not pigness, in very fine, whereas charcoal is often seen as lander coarse and lander coarse granular.	The carbon secunito to be mixed in the anixed in with the cal- cium plouplase, and the general appearance is of canaducent blackin brown grains of railer with no separate black and white particle.		Fine white or whitish powder: Low R.L.
Except for graphic, which is a natural final mineral final mineral final mental final fina	Obtained by charing animal bouca (or tunks) in a restricted air supply.		Natural de- ponit.
Consists primarily of car- bon as the free element. Ins- purities vary as to murex, c.g. lamp hydrocarbous.	Contains as little as 10% carbon, the carbon, the ing mainler being mainler being mainler being mainler being mainler being mainler being mainle being being with a little carbonate.	AND INBRIS.	Calcium car- bonate CaCO,
Carbon Mark (Charcol back, Iamp back, vine black, graphite).	Bone black (Ivory black). Animal black).	Wiiits Picments and Inerts.	Chalk (Whit- ing, Lime- whire).

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NEB 13
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William

Specific terri		(i) On dissolving in dil. HCl and allowing to crystalian into meter of the out, characteristic wheatplaster. Water formed. (ii) Fine test for Care. Onder (iii) To test for SO., '', boil the ond add blast of the cample with dil. HCl. the sample with dil. HCl., the control of the filtrate. A white fine of and add blast of the sample with of the filtrate. A white finelable ppt. of BabO, it formed if sulphate te present.	(i) (ii) and (iii) as above. (iv) To distinguish from gour is gypum by the hydraed fount's rightly greater solu- bility in water place a grain of two of the solid on a post place ad 2-3 drops of 4% Nay CO, solution reddened with percolabilishiem. Site the pptt, with a platfurm wher Gypum decolorizes the solution in 4-3 built, the anhy- drift in 13-45 mit. (N.II.—Analyzii of geno inerti are best done by X-4-3 cryatallography method.)	Llow Teas for Pb++ are given on the mider Red Lead (see Teed on of Pigment') and can be earlied on with the colution of the pigment in HNO, (dilute).
Effect of heat		har ite' C. loser water of crystallization (giving plater (giving plater of Path). Water ser at the top of the tube.	No effect; with a dry sample no water vapour in given off on beating.	Turns yellow owing to the formation of Manket (lead mionoxide, PbO).
	LINO, (concentrated)	Moderately soluble.	Moderacly sol- a dry sample no uble. water vapour in given oft on beating.	Soluble.
Sotubilities	HON N	1	1	Partially soluble at sodium plumbite.
	JN IICI	Moderately soluble.	Moderately sol- uble, but less so than grpsum.	Suluble, giving a white patt. of PbCl, soluble on heating.
Americanse under	law magnification	Unulty fine grands: cry- galline mass.	Fune white powder.	Fine white prowder (individual grains and crystallioity only seen at very high power).
Origin, or date	of hvernilon (if after 1700)	Natural deposit.	Prepared by calcining gypunn.	Attificially prepared from very early times.
	Chemicol	Calcium aul- phate dibyd- rue, CaSO, . alf,O.	Costo,	Hate lead cat- bonate, 21'b COp. Pb(UH),
	Pignent	Gypaun.	Auhydrous Calcium Sul- plate (auhy- drite).	Lead white.

(i) Not blackened by 11,5, anioce ZaS is white. (ii) Test for Zat with dishitame: a form of the solution in AOH is mared was a post plate with a few dropt of dishitsone solution (to mg dishitsone solution (to 1). A The CCL, it are solution (to mg dishitsone solution (to 1). A support of the control of the solution (to 2). Zat, The test is specific for Zan, fin test is specific for Zan in a failing solution.)		Soluble in aqua regia (f. sone, HCMO), and mattacked by any other reagents. The following text muy be made out the solution: A drop of the rest solution and a drop of beneridine reagen (for 9% in 10 % accident and a drop of beneridine reagen (for 9% in 10 % accident and a drop of persone of Au a blue colour it formed. (ii) Text for Au with Rhodamine III and of solution in aqua reggia in mixed on a spot plate with 1 drop of reagent (for 16 in 10 min. Water). The solution in all water) The solution in all waters are solved to be buseness. If Au it persone the benezene layer becomes the layer becomes the layer becomes the layer becomes the layer of benezene layer becomes the layer of benezene layer becomes the layer of layer.
Turn yellow on healing but be- gomes white again on cool- ing.		1
Completely soluble with no effervescence.		
Solube 21 rodium rincate.		1
Completely sol- uble, with no effervencence.		1 -
Very finely divided white powder.		Colour varies, with the degree of punity being sonteiner pinktih and sonteiner yellowiti. Bright unerallic doct uto tarnish. Used as thinly does uto tarnish. Used as thinly does uto tarnish. Used as thinly does uto tarnish. It is an ordinary pigurent.
Auficially prepared. The use of 2.00 as a pignitude was first uncer was first ungested in 1782.		Rnown from
Zino oakle, ZinO	S PIGMENTS.	Metallic ek- nent, Au.
Zinc white (Chinese white) ZuO.	MITALE USED AS PICMENTS.	Gold.

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Specific pets		(i) To the solution in 11NO, in added did. 11CL. A white darkening out exponute to darkening out exponute to little and adolbe in execus NII. (ii) Addition of K (C1O, to differ the state adolbe in execus NII. (iii) Addition of K (C1O, to differ the try addition produce a part. of brick-teed affect chromate. Ag, CO, (The reaction is best seen on a post plate.) (iii) Test with p-dimethylaminio benry bleine thedaninio benry bleine thedaninio and adop of KCN aminio benry bleine thedaninio and adop of KCN solution (10 % ad). A dop of the reagent (20 % in added followed by diff. INO), until the mixture and A piut columnio in added followed by diff. INO), until the mixture care Ag. (Under these condition A but was not give a coloured component).
kiffect of heat		I
	11NO, (concentrated)	Dissolves with evolution of fine from sides of forem fames with characteristic colour).
Solubilities	HO'N N'	·
	JN HCI	Very slight solvent action.
Appearance under	of sevention love magnification	When untar- nihed has a white metallic her, hart rapidly dis- conduration an impute atmos- pleter, owing tu- lle fremation of a film of black in phide.
Origin, or Late	of invention	antiquity
Chemical	composition	Meallic ck- nent, Ag.
	Pigment	Silver.

The mental dissolver quite rapidly in came. HCI, forming stannars choicide. This solution cast be tasted for the following retainment choicide. This solution cast be tasted for the following retained by the paper impregnated with a solution product a liter paper impregnated and then dried. A drop of the test solution products a blue quot if Su it present. (i) Test whith Cacoubline: (ii) Test whith Cacoubline: (ii) Test whith a solution product a blue quot if Su it present. (ii) Test whith Cacoubline: (ii) Test whith Cacoubline: (ii) Test whith you of the test solution and any solution of the reagent. A duot of the test solution of the reagent. A duot of the test solution of the cast it spired ty. According to the amount of Su a reed circle or ing it futured on the paper endoared yellow by the reagent, metrounded by a colmulest rone.
lowly on deated standic deated standic deated standic deated standic formed on the formed on the standic. AlapsinO, and the strin allows down and stops.
Discolves very thouly on the stating form- ing sedium taunste, Na,5mO ₃ .
Disolves rathes dowly in the diluted acid.
Lustrous white metal, undarnithed by air and water.
Known from antiquity and sometimes uned to ple- tures in the Middle Ages.
Meallie ck- neul, Su.
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THE STAGE MICROSCOPE IN THE ROUTINE EXAMINATION OF PAINTINGS

By RUTHERFORD J. GETTENS and GEORGE L. STOUT -

Technical study of paintings as this may be carried out for the purposes of historical research, museum record, care, and treatment, has to do with a large number of questions about the materials which make up these works of art. Some such questions will have to go without an answer and others will have to be referred to specialists for a type of investigation which may not be suitable to a museum laboratory. There are many, however, which can be answered with relative ease and often with entire certainty by the museum examiner when he can take specimens from the painting and study them with a stage microscope.

Examination of specimens naturally can not displace the surface examination which is carried out by eye and with a binocular microscope, and often it can do no more than corroborate what has been found out by established optical means such as radiography, photography by infra-red radiations, and observations by ultra-violet light. Specimens from a picture are studied for the purpose of answering very specific questions about materials, their constitution, or their behavior in response to solvents or reagents. These are questions which could not be answered by study of the painting itself. For the curator, the student, or the conservator, analysis needs to be kept down to rudimentary tests which can be quickly made and which are calculated to help in reaching conclusions important to the purpose at hand. The tests that are suggested here, as the result of some experience, will have to be selected according to that purpose, and all

An outline for recording the results of a general technical examination has already been suggested by a committee of the American Association of Museums (see 'A Museum Record of the Condition of Paintings,' *Technical Studies*, III [1935], pp. 200–216).



REAGENTS 3 (Distilled water)

Acids-Hydrochloric acid, concentrated

Hydrochloric acid, dilute (1 vol. conc. acid to 5 vols. water)

Nitric acid, concentrated

Nitric acid, dilute (1 vol. conc. acid to 7 vols. water)

Sulphuric acid, dilute (1 vol. conc. acid to 10 vols. water)

Alkalies—Ammonia, dilute (1 vol. conc. ammonia to 5 vols. water)

Sodium hydroxide, dilute (5 g. NaOH to 100 cc. water)

Salts—Potassium iodide (powdered crystals)

Potassium ferrocyanide (powdered crystals)

Potassium mercuric thiocyanate (crystals) 4

Organic Solvents &

Ethyl alcohol (95 per cent)

Acetone

Ethylene dichloride

Xylene (xylol)

Naphtha (V M & P)

MOUNTING MEDIUMS

Glycerine and water (I:I) for temporary mounts Canada balsam for permanent mounts

The strong acids should be kept in small, capped bottles provided with a ground-in glass stopper which is drawn to a fine point for dropping. The dilute liquid reagents and organic solvents may be contained in small dropping bottles with ground-in pipette and rubber bulb. (In order to keep the stopper of the sodium hydroxide solution from being 'frozen,' it is well to put a film of paraffin or grease around it.) Dry reagents can be kept in small salt bottles.

Potassium mercuric thiocyanate is not easily obtainable and it may have to be specially prepared in a chemical laboratory. Directions for making it are given by Chamot and Mason (Handbook of Chemical Microscopy [New York: John Wiley and Sons, 1931], II, 394) as follows: Dissolve 3 to 5 parts of KSCN (potassium thiocyanate) and 1 part of Hg(SCN): (mercuric thiocyanate) in a minimum quantity of water and evaporate in a desiccator. Collect the first crop of tabular crystals, wash with alcohol, and drv.'

³ Preliminary study seems now to indicate that a small amount of dye held in solution

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a mutilation of the design is not to be contemplated. This does not make such a severe restriction as may at first appear. Obviously, the minute quantities required for microscopic study can always and easily be supplied from the support, from the ground where it extends beyond the paint film or is exposed in lacunae, and from the surface film where it runs over the edge of the paint film, or where its ultimate location beneath the rabbet of a frame makes the removal of superficial flakes entirely harmless. The sampling of the paint film itself is sure to be more difficult, but it is usually possible to find locations at the edge or bordering lacunae where specimens can be safely removed. If these are so large as to be easily visible to the eye, they are apt to be an extravagance for microscopic study. Sampling is ordinarily done with a fine steel needle or the small steel harpoon commonly used in biological laboratories. The process of removing small samples in the field provided by a binocular microscope or a high-power magnifying lens and of transferring these to a glass slide without applying pressure, or in any other way endangering the painting, can be worked out by any examiner who is familiar with museum technique.

Among the other articles of equipment useful in the routine microscopic examination of specimens from paintings is a set of reference or comparison slides. The extent to which such a set can be built up is, of course, the problem of each examiner. Responses of known film materials to solvents and reagents, if they can be preserved for reference, will be valuable, for the memory of the examiner is seldom sufficiently stocked with their appearance. Slide reference material may include, also, specimens that are preserved for record on a particular painting. This method is little used to date but is one which is capable of almost unlimited growth and value. Small metal carriers for object slides are available in the market, so cut that they will fit into 3 × 5 inch filing cabinets; various types of containers for storing microscope slides are to be had.

when a drop of dilute acetic acid is placed on it, this estimate can be accepted. (This and other reactions of the two materials are shown in Table I.) For negative confirmation, or to try the specimen for calcium sulphate (gypsum) in the event that it has not shown the typical response of a carbonate, a drop of water is put on it and into this is dipped a thin rod that has been moistened with dilute hydrochloric acid. If the specimen contains gypsum, this will recrystallize and, after the drop has stood for a minute or so, until the water has partially evaporated, the edge will contain the characteristic needleshaped (acicular) crystals of this mineral (see Figure 3). In general, gypsum makes a softer plaster than lime, is more finely crystalline, and rarely contains any large admixture of sand.

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Cloth that is used for the support of paintings is almost sure to be either of linen or of cotton fibre. Since the former was far the more prevalent during the Renaissance in Europe, it may be of some value to distinguish between them. The fibres, combed or pulled out at the ends of threads, can be studied by transmitted light if they are put on a microscope slide and teased apart with a needle. They may be sealed in one of the usual mounting mediums for more permanent record. If they are of linen, the fibres will be long, and will show joint-like cross-markings that make them look rather like bamboo; they will also show longitudinal striations; the natural fibre end, though rarely seen, is gradually tapered. Cotton fibres are smoother than linen, are usually twisted, have no nodes or joints, and look like tubes with thickened walls; they are not so long as linen, and the natural end of the fibre is blunt. (Compare the two photomicrographs in Figure 2.)

The fibres that go into the paper used as a support for painting are much the same as those prevalent in cloth supports, but do

See John S. Skinkle, Elementary Textile Microscopy (New York: Howes Publishing Co., 1930), pp. 64-68.

include a few others and, because of their relation in paper structure, are somewhat more difficult to identify. Staining tests for paper are now fairly standard and have a considerable variety, both in the solutions used and in the results obtained. According to H. N. Lee, a traditional stain (like the one frequently called 'the Herzberg stain') is made up as follows: '. . . iodine I part, potassium iodide parts, water 30 parts, zinc chloride 40 parts. Dissolve the potassium iodide and then the iodine in the water and add the zinc chloride. Allow the mixture to stand, decant the clear liquid and store in a brown bottle.' Before the stain is applied, a few fibres of the paper are separated in water on the microscope slide and are allowed to dry. When the stain solution has been put on the fibres and they are studied at 50× with either daylight or artificial light, the following reactions are observed: ⁸

Blue-thoroughly purified wood, straw, grass, and similar fibres.

Brownish red—the cotton-type group, i.e., cotton, linen, ramie, hemp, paper mulberry, and bleached Manilla hemp.

Yellow—woody fibres when not chemically purified from wood itself, straw, or grass. Partly purified woody fibres are less yellow and show greenish, brownish, or even blue or reddish if nearly pure. Papers showing yellow, greenish, or brownish fibres will also show a red or pink with the phloroglucin test.

The grounds and paint films of pictures had best be considered, not according to their positions in the structure of a painting but according to the two principal ingredients that compose them—the medium and the pigment or inert substance. In routine museum examination definite data about the medium can not now be expected. Often the original structure has soaked up film materials put on the surface either by the original designer or during later treatment. Extensive study has been made in an effort to bring the types and combinations of painting mediums within a range where detection is

⁷ 'Established Methods for Examination of Paper,' Technical Studies, IV (1935), p. 8. ⁸ Ibid.

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Blue-thoroughly purified wood, straw, grass, and similar fibres.

Brownish red-the cotton-type group, i.e., cotton, linen, ramie, hemp, paper

mulberry, and bleached Manilla hemp.

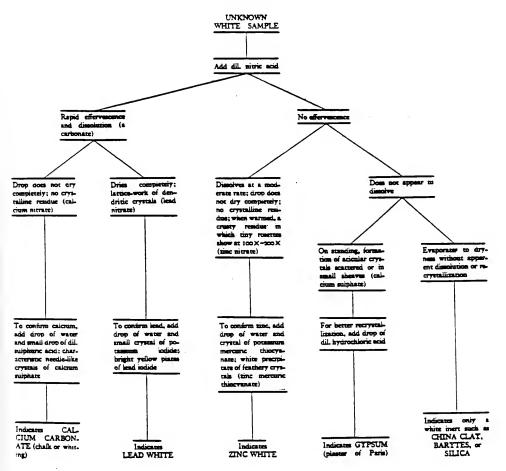
Yellow-woody fibres when not chemically purified from wood itself, straw, or grass. Partly purified woody fibres are less yellow and show greenish, brownish, or even blue or reddish if nearly pure. Papers showing yellow, greenish, or brownish fibres will also show a red or pink with the phloroglucin test.

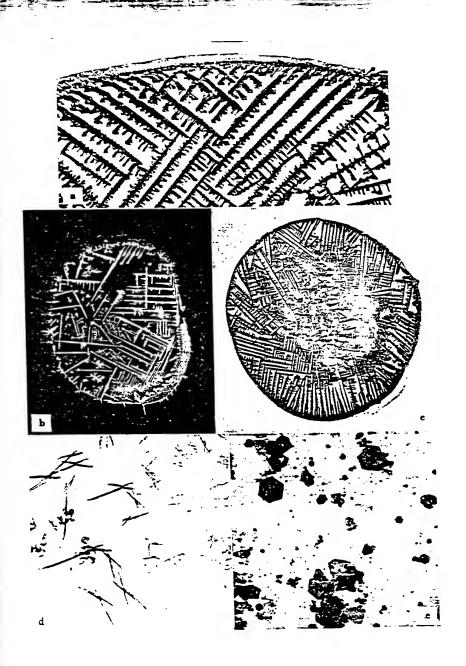
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[&]quot; 'Established Methods for Examination of Paper,' Technical Studies, IV (1935), p. 8. I Ibid.

TABLE 1

Recognition of Certain White Pigments and Inerts





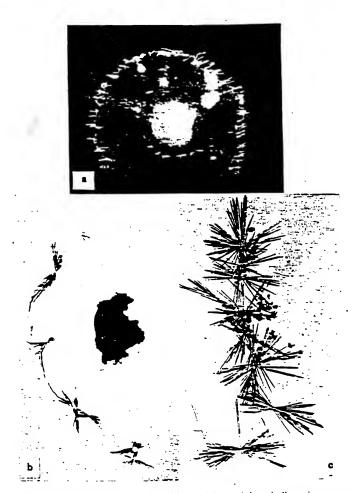


FIGURE 3. Photomicrographs of recrystallized calcium sulphate indicate its appearance under different conditions of illumination and magnification. In a, by reflected light and at $35 \times$, a hedge of the crystals may be seen. They have formed at the edge of a drop of dilute hydrochloric acid which was applied to the small specimen of plaster of Paris at the center. In b the calcium sulphate has recrystallized from a particle of light gray paint film taken from a Fayum portrait; it is seen by transmitted light at $75 \times$. In c are shown, also by transmitted light and at $75 \times$, a group of well-formed sheaves of hydrated calcium sulphate crystals.

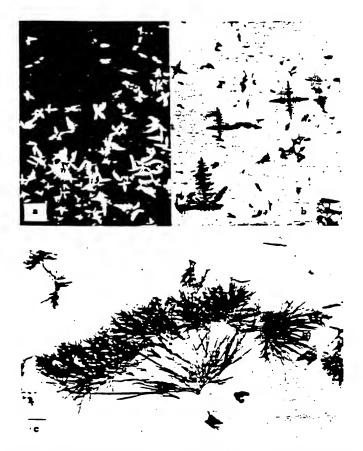
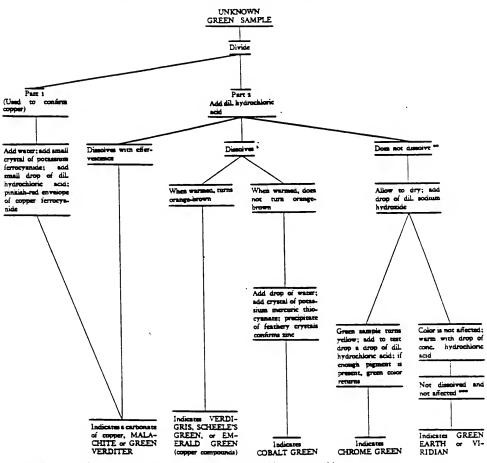


FIGURE 5. Crystals of zinc mercuric thiocyanate show highly characteristic forms. In a, white, feathery aggregates of these crystals are seen by reflected light at 50×10^{-5} , by transmitted light at 100×10^{-5} , crosses with fern-like arms predominate. In c with the same illumination and magnification another preparation shows this precipitate in mossy aggregates. Differences in concentrations of the reagents cause these differences in form.

TABLE II

RECOGNITION OF CERTAIN TYPES OF GREEN PIGMENTS



^{*} In cobalt green, if the sample is large, there may be a pale, blue-green residue.

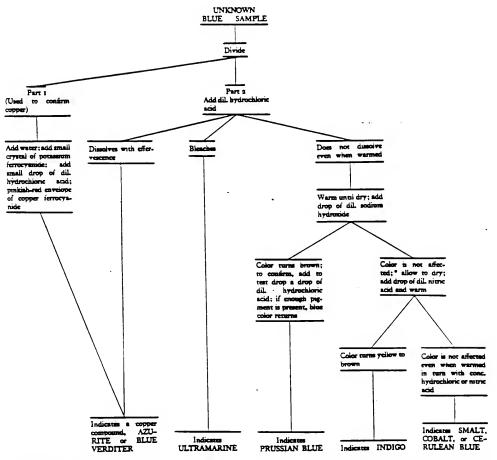
*** Effervescence may occur at this point from the action of the acid on a sodium carbonate impurity in the sodium hydroxide.

^{**} Change from green to blue color occurs at this point, however, in chrome green and is the first indication of that pigment.



TABLE III

RECOGNITION OF CERTAIN TYPES OF BLUE PIGMENTS



^{*} Effervescence may occur at this point from the action of the acid on a sodium carbonate impurity in the sodium hydroxide.



STAGE MICROSCOPE IN EXAMINATION

vescence of the copper carbonates.) Natural ultramarine is much coarser and is less homogeneous in particle size than artificial ultramarine.

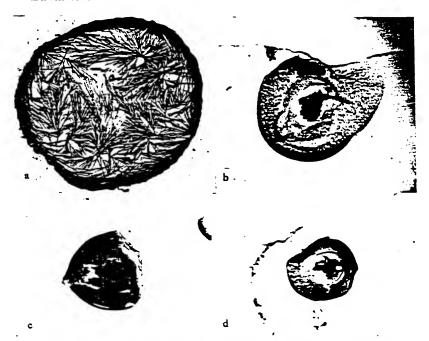


FIGURE 6. When dilute hydrochloric acid is added to most of the copper pigments, a residue of pale green, grass-like crystals of cupne chloride is obtained. When warmed, these crystals turn dark orange-brown, as may be seen in a, by transmitted light at 2.5×1 n b, c, and d are shown, by the same illumination and magnification, variations of the pinkish-red envelope that surrounds a particle of a copper-bearing pigment when it is treated with acid-ferrocyanide solution. The dark particle in the middle is the treated specimen. In b and d the edge of the test drop is seen.

If the blue color in the sample being examined is unaffected by dilute hydrochloric acid, it is allowed to dry and is treated with a drop of dilute sodium hydroxide.

STAGE MICROSCOPE IN EXAMINATION

ingredients. In routine museum examination, solubility tests are practically the limit to which microscopic study can go. Particles of the surface film can usually be removed with comparative ease and be piaced on microscope slides. The changes in such particles made by drops of solvent—xylene, alcohol, or toluene, for example—can be observed and the results noted. If the particles break down either on first or on repeated application of these solvents, it can be assumed that the surface film is largely composed of a soft resin. If dilute sodium hydroxide is required to disintegrate the specimen, the film

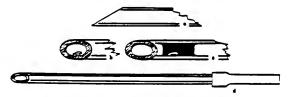


FIGURE 7. A diagram explains part of the method for capillary immersion of a surface film specimen in a stained solvent. A small dropper with a rubber bulb is used to apply the solvent to the mouth of the tube. The ground, angular shape of the end of the large capillary is shown in profile, twice actual size, in a. The position of the sample in the mouth of the tube is indicated in b and, in c, the way a drop of stained solvent draws up the sample. Below (a) is a diagram of the whole tube in actual size. At the end a small piece of rubber tubing helps in delivering the drop.

is probably composed largely of oil or of a hard resin fused in oil. The obvious exception would be a film that had been recently applied and in which solvents would strongly affect the fresh oil; general observations or the record of the painting ought to indicate this condition.

The difficulty with the application of solvent in drop form to specimens of surface film is its rapid evaporation. This can be greatly reduced and the test of solubility made more easily readable by a process of capillary immersion of these specimens in a stained solvent. The stain in this case has no preferential character so far as resins are

STAGE MICROSCOPE IN EXAMINATION

concerned, and is used only to produce sharper definition in the field. Malachite green, a dyestuff which is soluble in water and in a few of the organic solvents, has been tried for this purpose. It is taken up to at least 0.01 per cent by ethyl alcohol, acetone, ethylene dichloride, diacetone alcohol, and probably by other solvents particularly of the alcohol and ketone groups. Particles of the resin, approximately a half millimetre square, are put in the end of a large capillary (having an inside diameter of about 1 mm.) which is ground down to a shape like that of a hypodermic needle (Figure 7). At the other end is a short piece of rubber tubing. A drop of the stained solvent is placed on the resin particle which is taken up by it and is carried a short way into the tube by capillary movement. It can stay there for some minutes without losing enough solvent to prevent its easy delivery on a slide. The drop is delivered by pressing the rubber tube and a second drop of pure stained solvent is put on the same slide. After both this and the specimen are thoroughly dry, the slide is washed with water until the stain that was carried by the solvent alone has disappeared. This leaves a small drop of sharply-defined, stained, dissolved or undissolved resin, and comments about solubility can be made from this more exactly than from exposure of the solvent on the slide alone (Figure 8). If there is pigment in the surface film introduced for the purpose of darkening the tonality of the painting, particles of that will be left in the drop and will be held in place by the surrounding resin.

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FIGURE 8. Examples of drops of stained solvent after varnish specimens had been left in them for 20 minutes each. Immersed specimens were kept in a capillary for that time and after the drops were delivered on a slide and were dry, they were washed with water to remove excess stain. Complete solution occurred with mastic in acetone (a), copal in acetone (c), mastic in ethylene dichloride (d), and dammar in ethylene dichloride (c). Particles of undissolved resin are left in the specimens of dammar in acetone (b) and of a proprietary amber varnish in ethylene dichloride (f). Dark particles in the other fields are lint caught from the air when the specimen was drying. (Magnification in all cases is 9×1)

Pigments Tested for During Paint Analysis

Common Name Chemical Name Chemical Formula

White Pigments

Lead White Basic Lead Carbonate PbOH

Whiting Calcium Carbonate CaCO

Zinc White Zinc Oxide ZnO

Gypsum Calcium Sulfate Dihydrate CaSO 4.2H20

Titanium White Titanium Dioxide TiO

Green Pigments

Verdigris Dibasic Copper Acetate:

Two Farts Cupric Acitate
One Fart Cupric Hydroxide

Five parts Water

2Cu (CH3 COO) 2: Cu (OH) 2: 5H20

Scheele's Green Copper Hydro-arsenate CuHAsO3

Emerald Green Copper Aceto-arsenate Cu(C₂H₂O₂) JCu(AsO₂)₂

Chromium Oxide Green

Anhydrous Chromic Oxide Cr₂O3

Viridian or Guignets Green

Chromic Hydroxide Cr(OH) nH₂O

Chrom Green Mixture of Prussian Blue

and Chrome Yellow

Fey(Fe(CN),]3+FbCrO

Blue Pigments

Prussian Blue

Berlin Blue

Chinese Blue Ferric Ferocyanide Fey[Fe(CN),]3

Parıs Blue Hamburg Blue Mineral Blue

Azurite Basic Copper Caorbonate 2CuCO3-Cu(OH)2

Ultramarine Sodium Aluminum Silcate

(Lapıs Lazuli) and Sulfur NajAlıSiıO2452

Colbalt Blue Cobalt Aluminate CoO.Al203

Red Pigments

Vermilion Chinese Red Cinnabar	Red Mercur:	ıc Sulfide	HgS
Iron Oxide	Ferric Oxid	de	Fe ₃ 0 ₃
Red Lead	Lead Tetro	xide	Pb 3 ⁰ Y
Madder		the root of th Hydroxide Base.	
Alizarın	u	н	C14H804
<u>Y</u>	ellow Eigment	<u>s</u>	
Litharge	Lead Monoxid	e	Pb0
/ellow Ochre	Hydrated Fer	rıc Oxide	FeO(OH)·nH2
Naples Yellow	Lead Antimon	ate	Fb 3 (Sb04) 2
Barium Yellow	Barıum Chrom	nate (IV)	BrCrO4
Strontium Yello	ow Strontium Ch	romate (IV)	srcro 4

Cobalt Yellow — Cobaltic Potassium Nirite — CoK $_3$ N \wp 0 $_{1/2}$

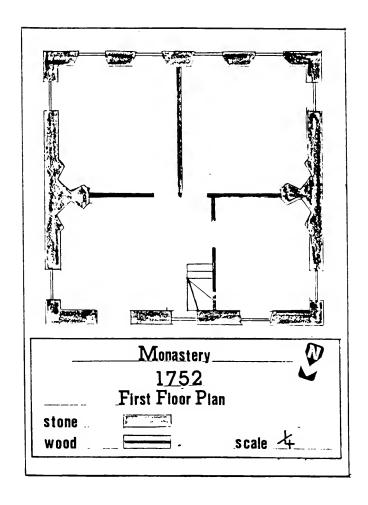
CdS

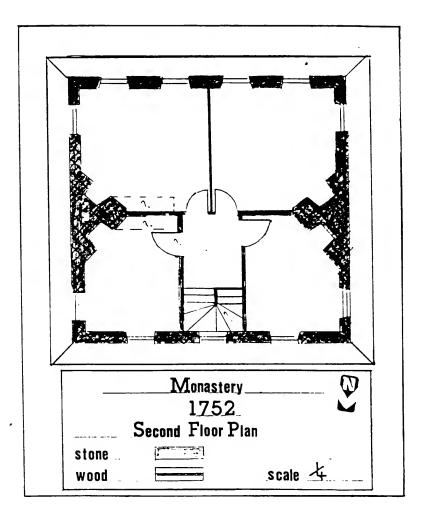
Cadmium Yellow Cadmium Sulfide



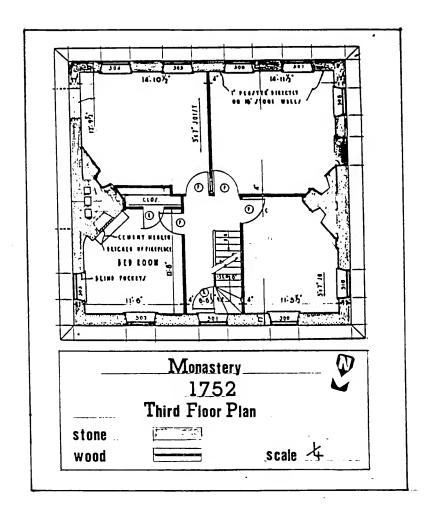
P<u>ependia #4</u>
Honastery
1760 Floor Plans

These floor planes are based on the Historical American Building Survey architectural drawings done in 1935 and a visual inspection of the structure. The basement and the fourth floor are omitted.



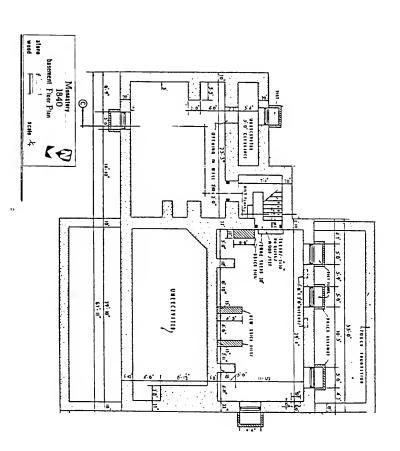




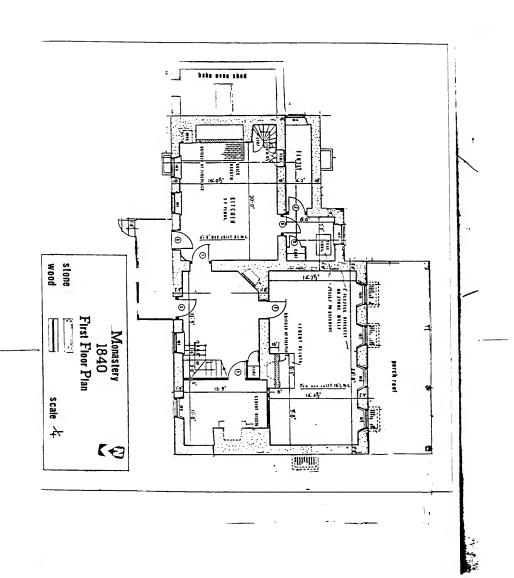


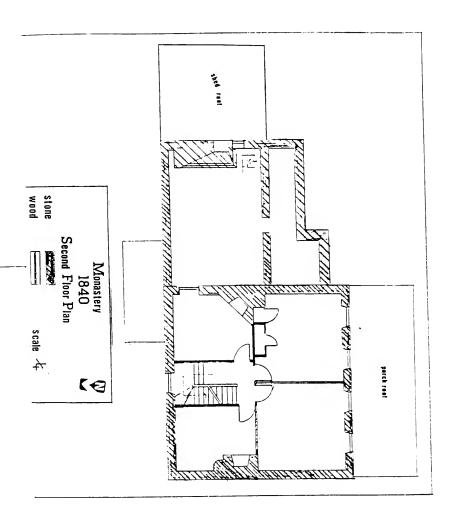
Oppendia #5 Monastery 1840 Floor Plans

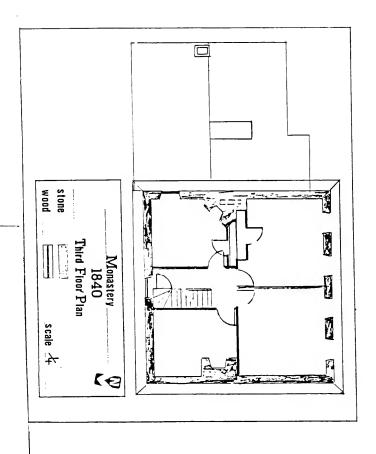
These ricor plans are based on the Historical American Building Survey drawings done in 1935 and visual inspection of the building.

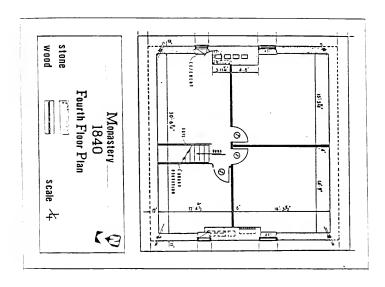














DDDBDG11 #6 Chain of Title for the Monastery Form the Title Regestry of the Department of Records. Philadelphia City Hall, Philadelphia Pa.

Multimater 1. Chain of Title for the Monastery Mansion

Philip Lehuman: Sept. 2, 1685. Letter of patent to Philip Lehuman for 200 acres of land in Roxborough Township. Patent Book A-Foil. 106, cited in Deed book H-2-214.

John Jennet Deed Book, E-5-199 Jan. 9, 1685/6

cited in Deed Book, H-2-214

Henry Freu Deed Book, B-2-360 cited in Deed Book, H-2-214 Oct. 1. 1692.

Henry Frey splits the lot into two pieces and sells twenty acres to George Jacob on Feb. 3, 1724, which, on March 2, 1729/30 is in turn sold to Jacob Rinker. Both transactions are cited in Deed Book H-2-21. Two and a half acres of the twenty acres is sold to Benjamin Shoemaker on Nov. 3, 1742. A 100 acre portion of the original lot is sold to John George Wood on March 9, 1729.

John George Wood Deed Book, H-2-214 100 acres for 87 pounds. March 9, 1729

From 1742 to 1746 Benjamin Shoemaker buys up the two tracts of land mentioned above and two others.

The lots are:

To Benjamin Shoemaker Nov. 3, 1742 From Jacob Rinker Deed book, H-12-321 2 acres and 149 1/2 perches

To Benjamin Shoemaker Oct. 29, 1742 From John Gomrey cited in Deed Book H-12-306 along with the complete chain for this property, which contained a messuage plantaion and two tracts of land, one of thirty-seven 1/2 acres and the other of eighty-five acres. The deeds for this transaction can be found in the Germantown Historical Society. See Appendix #1

To Benjamin Shoemaker March 21, 1745/6 From John George Wood Deed Book, H-12-299 3 acres 73 perches

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In 1746/7 Benjamin Shoemaker sells all four lots to John Gorgas.

John Gorgas

Deed Book, H-12-306 March 2, 1746/7 3 acres and 72 perches 2 acres and 149 1/2 perches 85 acres 37 1/2 acres

Described in the Deed as two tracts of land and a Messuage Plantation Paid 300 Pounds

John Gorgas sells partial interest in these tracts of land to several people.

To Jacob Simon Michael Pelsner

Nov. 27, 1747 Deed Book, H-12-314 Sold 1/2 interest three tracts of land: 3 acres and 72 perches 2 acres and 149 perches 27 acres part of the 85 acres.

To Adam Yager

Nov. 16, 1751 From Jacob Simon Deed book, E.F.-15-182 Convey 1/4 interest in the land which was originally sold to Simon by John Gorgas.

In 1752 Joseph Gorgas begins to buy up all the interest to the property which his brother John originally owned. The deeds describe th improvements made on the land asi A saw mill, grist mill, and several other messuages and buildings.

To Joseph Gorgas

April 6, 1752 From John Gorgas Deed Book, H-2-356

Conveys the moiety of two acres of land part of the twenty-seven On this land Joseph Gorgas is credited with the building of the house. *... Where upon the above named Joseph Gorgas has since at his own cost and charge built and erected a stone three story house of messuage on a certain piece or spot of ground part of the aforesaid 27 acres."

To Joseph Gorgas Skin Dresser April 10, 1752 Deed Book H-2-359 Paid Five Pounds From Adam Yager

Sold 1/4 interest in a stone messuage and two-acre lot part of the 27 acre lot.

To Joseph Gorgas Miller late Skin Dresser April 15, 1752 From Mary Pelsner
Deed Book, H-2-362 Widow of
Paid 25 Pounds Michelle Pelsner

Description of the tracts of land includes this description of the improvements that "Jacob Simon, John Gorgas and Michael Pelsner who in possession of the other moiety did build and erect a Grist Mill, Saw Mill and several other messuages and buildings." Mary Pelsner sells her 1/4 interest in the land and improvements to Joseph Gorgas.

The remaining 1/4 interest in the three tracts of land which was bought from John Gorgas by Adam Yager is never conveyed to Joseph Gorgas. It is reunited with the whole when Peter Care buys the property.

To Joseph Gorgas Deed Book, H-12-302 Dec. 21, 1759
Interest in three tracts of land and whole
interest in nine acres, which was part of the twenty-seven acre tract.
The mills are mentioned in this deed but a messuage is not.
Paid 600 pounds.

To Edward Milner of Roxborough Deed Book, I-3-317 Miller Paid 1500 dollars.

Conveyed to Edward Milner interest in three tracts of land. Two acres 149 perches, 3 acres 72 perches and 27 acres. See Appendix 82. "On the first tract of land there is a certain Messuage or tenement erected and on the second and third a grist mill, or a corn mill and a saw mill." The improvements are further described asi "on the first described tract of land with the messuage or tenement and other buildings and improvements there on erected by the said Joseph Gorgas by force and virtue of some good conveyance or assurance in the law duly had and executed."

To Peter Care March 17, 1775 From Edward Milner Deed Book, I-14-279

To Peter Care

June 11, 1776 From Paul Engle Deed Book, I-16-20

This indenture conveys 1/4 interest in the three tracts of land originally bought by John Gorgas and sold to Yager. This interest in the land is then sold in a sherrif's sale to Leonard Stonebumer. Stonebumer sells the interest to Paul Engle in 1758. Deed book 1-14-456.

To John Miller Jr. April 21 1802 From Peter Care Thomas W. Francis. Deed Book, Ef-9-170 For benefit of creditors.

Peter Care became bankrupt and gave the property to Miller and Francis to sell to pay his creditors.

To John Livezy Miller Feb. 18 1803 From John Miller Jr. Deed Book, EF-13-569 Thomas Francis paid \$14,250.

To Joseph Livezy and wife

Feb. 7, 1805 From John Livezy Deed Book, EF-22-463 1/2 interest in five tracts of land,

the stone messuage and the mills.
Paid \$17,195.

Description of property: Stone messuage and merchant mill, and five pieces of land. Bolting mill, 3 pr. of Burr mill stones, elevators, screening fan and weights, scales and wheels.

To John Conrad City of Philadelphia Book seller Aug. 27 1808 John Livezy Deed Book, EF-30-469 Joseph Livezy Paid \$19,500 Millers from Roxborough

To Gavin Hamilton. April 28, 1815
Deed Poll, Supreme Court. Recorded in Book C page 481.
John and Joseph Livezy vs. John Conrad deeded to Gavin Hamilton.
Paid \$5,900. Gavin Hamilton bought the property with funds from
Robert and Samuel Paterson Campbell, who each own 1/2 interest in
the property.

To Samuel Campbell et all. April 23 1816 From Samuel Paterson New York Broker Deed Book, MR-14-10 Campbell,

John Chambers, Book seller Convey 1/2 interest gentleman George Davis Paid \$1.00. Description of land: Paper mill, messuage and tracts of land.

To John Lonstroth
Merchant
Deed 8ook, MR-17-40 et al.
Description of land: eighty-three acres containing five tracts of land amessuage, paper mill and tenement.

To The Pennsylvania Company for Insurance on lives and Granting Annuities Assingnees. Deed Poll, District Court, Recorded in Book F page 166. June 16, 1832.

The Pennsylvania Company. Us. John Longstroth, Deed to the Pennsylvania Company. Paid \$7,000 for five tracts of land containing 83 acres on which a messuage and paper mill stood.

To Joshua Garsed et al. of Frankford John Raines Joshua Garsed Jr. Hilliam Hillock Under firm of Garsed, Rains and Co. Manufactures. Aug. 10, 1832 From The Penn. Deed Book, AM-29-681 Company. Paid 10,000 83 acre lot.

To John Brock and James Hart Sept. 11, 1841

Deed Poll, District Court, recorded in Book K page 344. The Pennsylvania Company for Insurances in lives and Granting Annuities Vs. Joshua Garsed Jr. and William Hillock deeded to John Brock and James Hart. Eighty-three acres with tenement and paper mill.

To Elisabeth Weest

April 15, 1843 Deed Book, RLL-7-34

From John Brock et al.

To William Kitchen Nov. 24, 1853 From Francis Weest William Gordon Kitchen Deed Book, TH-52-264 Nephew of Elizabeth died in testate, property was given to her nephew.

2



Sept. 15 1864 From William Kitchen Deed Book, LRB-51-173 Convey 1/2 interest To William Gordon Kitchen

In 1871 William Gordon Kitchen died in testate and property was given to his wife, Susan Kitchen, and their seven children. In this same year the City of Philadelphia determined that it needed this land for Fairmount Park. In 1873 the City of Philadelphia paid Susan Kitchen and her seven children \$53,500 for the property which ran along the Wissahickon Creek.

March 31, 1873 From Susan Kitchen Deed Book FTW-41-283 et al. To The City of Philadelphia

June 30 1898 To The City of Philadelphia From Susan Kitchen Deed Book WMG-327-215

The Monastery Mansion was built between 1747 and 1752. It is clear from the deeds that Joseph Gorgas built the house.

Sourcesi

Title Registry of the Department of Records, Philadelphia

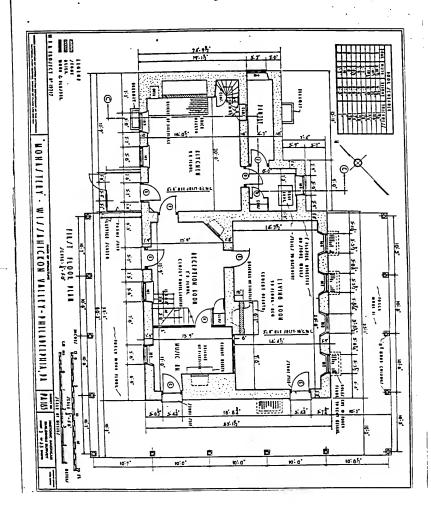
City Hall.
"Brief of Title to a Tract of land, part of which is included the property of The Estate of in the bounds of Fairmount Park, the property of The Estate of William Gordon Kitchen.* Fairmount Park Commission, Box #8, William Gordon Kitchen, City Hall Archives, City Hall Annex, Philadelphia.

Fairmount Park Commission, Box #8-A, Susan Kitchen, City Hall Archives, City Hall Annex, Philadelphia.

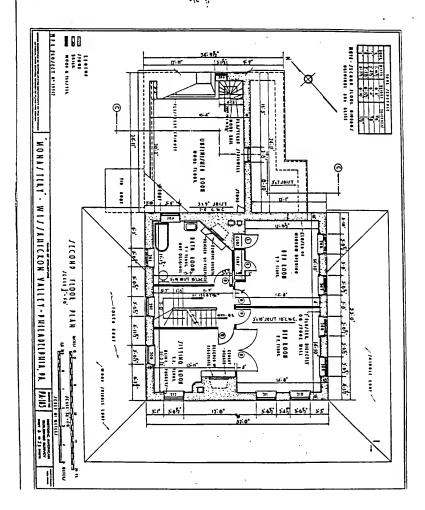
Appendix #7 Monastery 1935 Floor Plans and 1986 Floor Plans

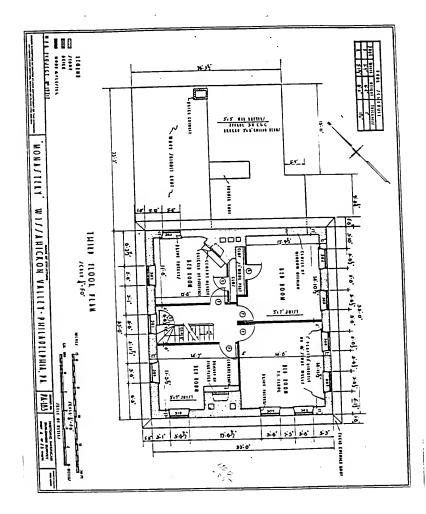
1935 Historic American Building Survey Drawings
The 1986 Floor Plans are based on the Historic American
Building Survey drawings and the presents configuration of
the building.

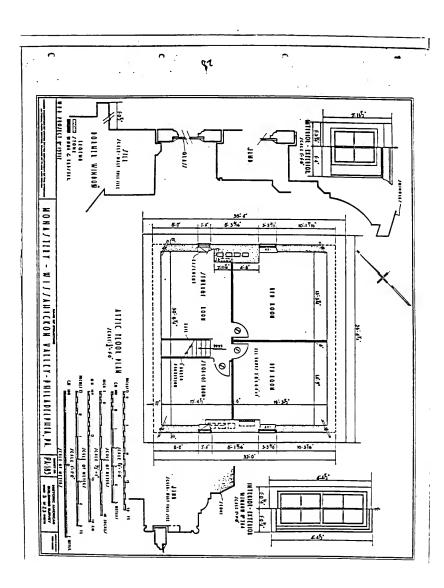
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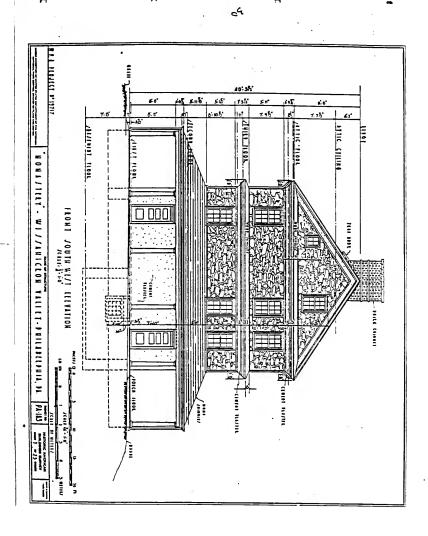


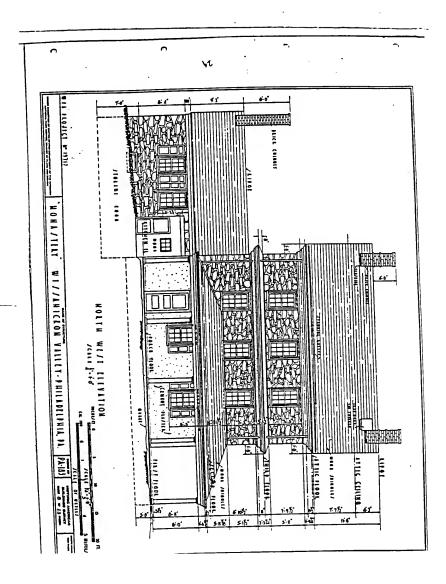




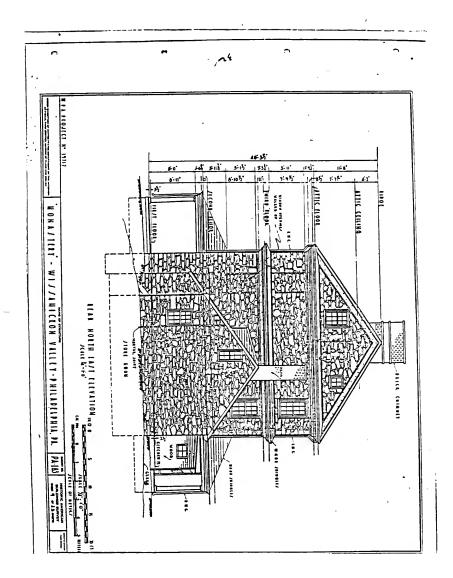


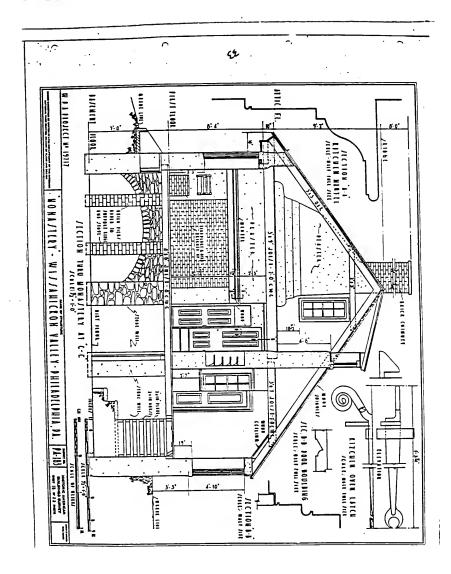


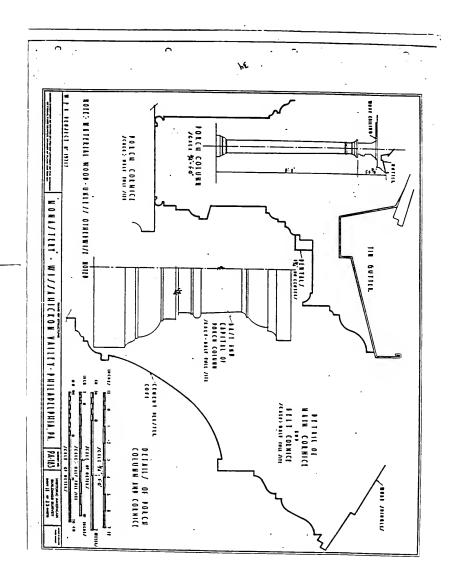




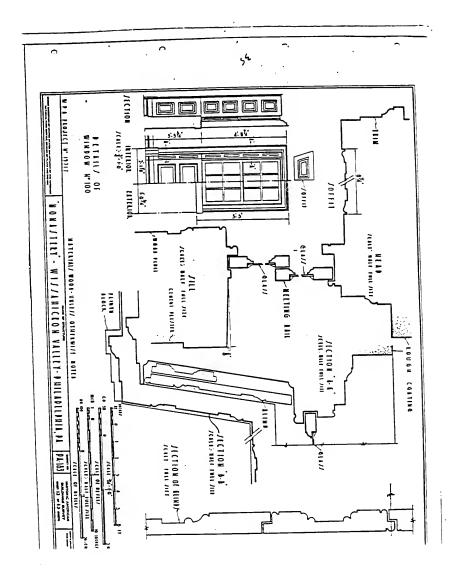
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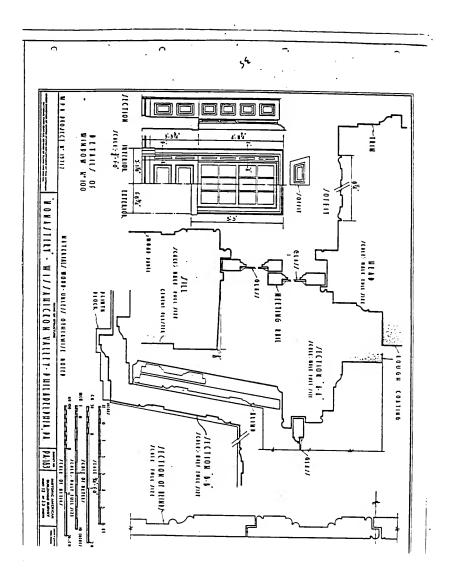




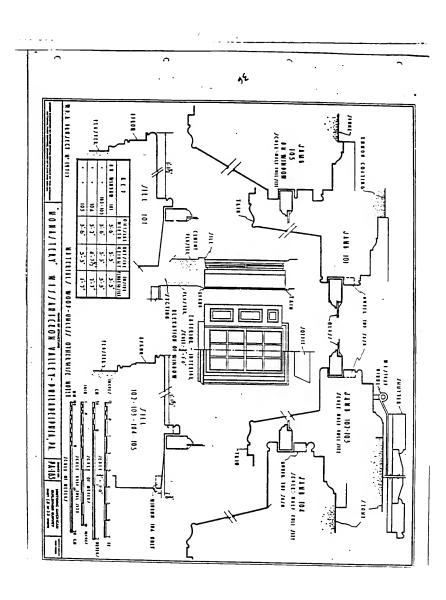


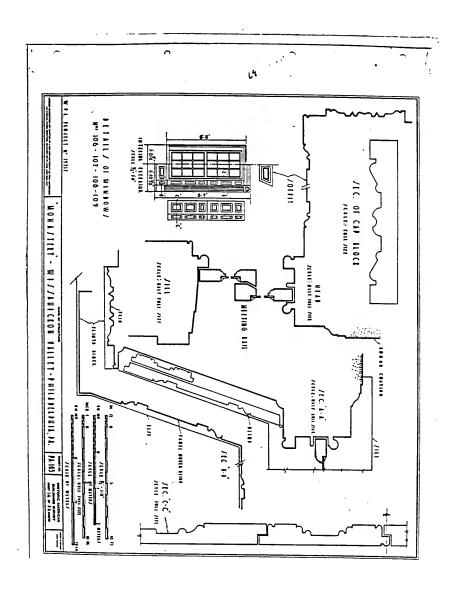


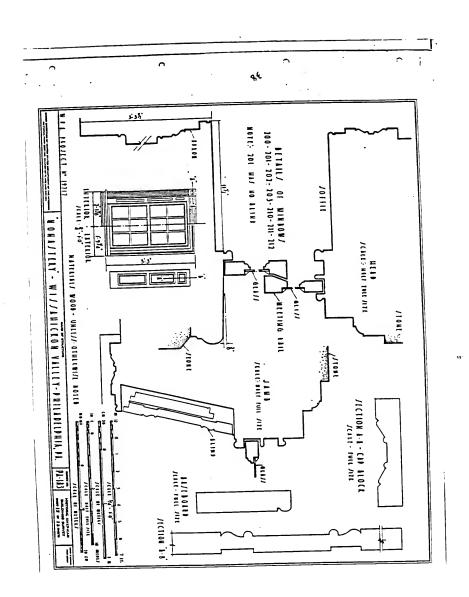


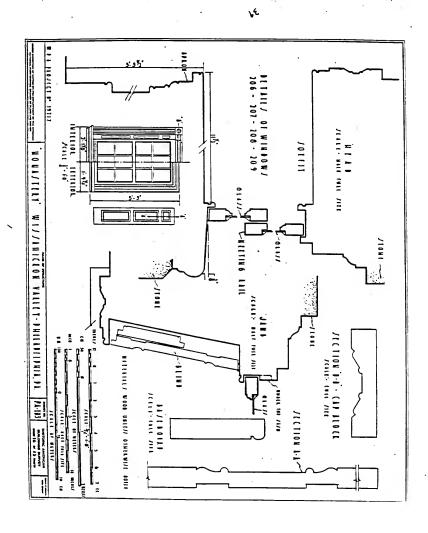


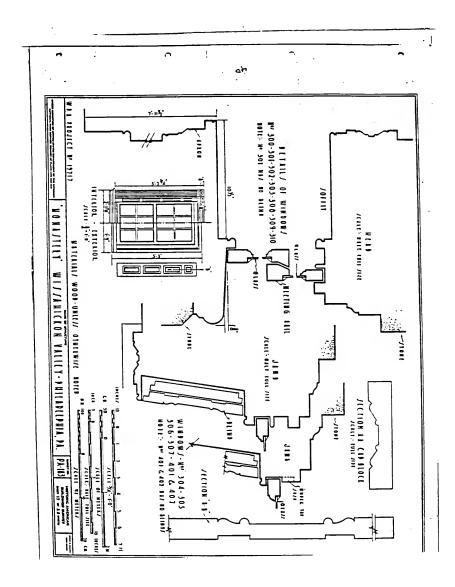


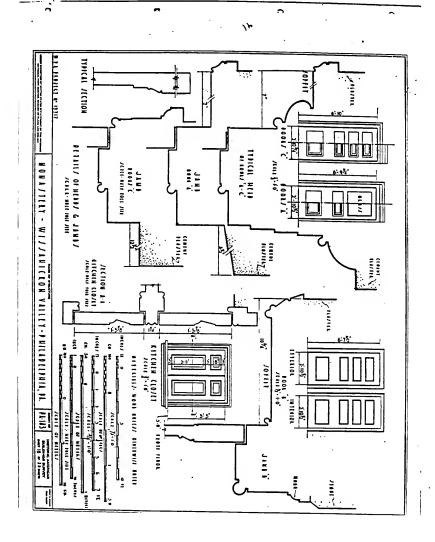


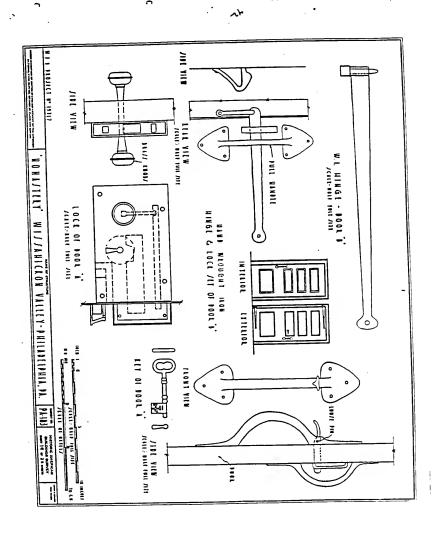


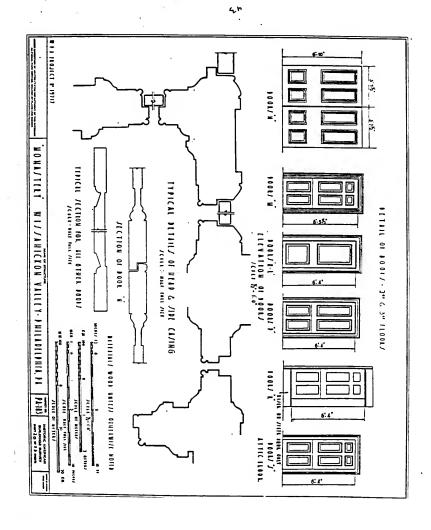




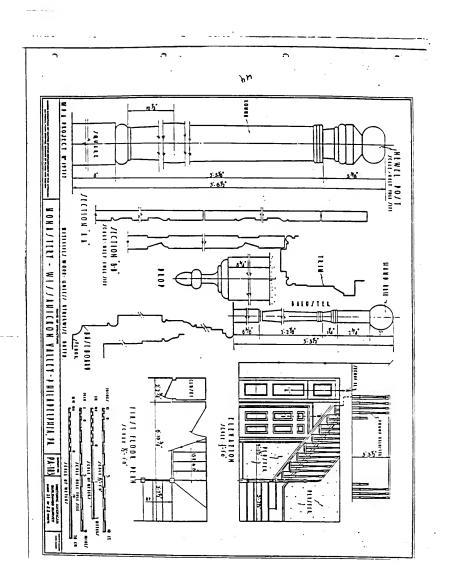












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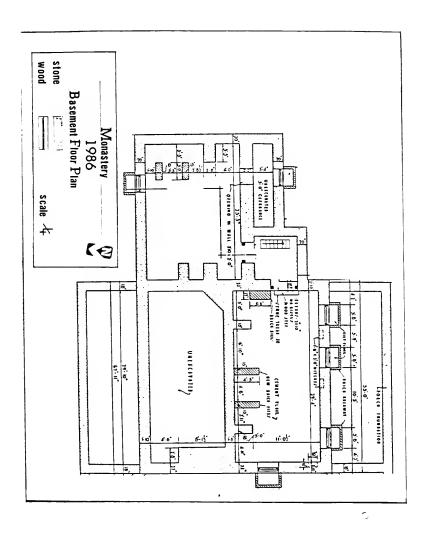
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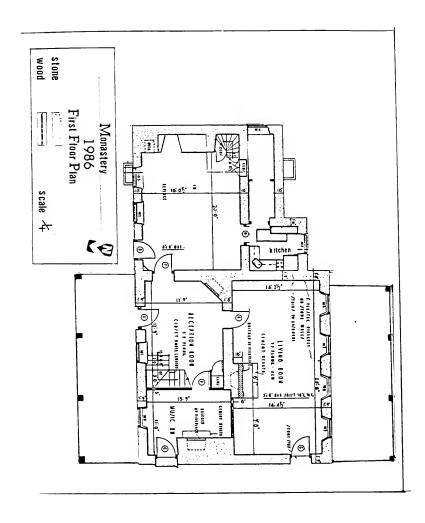
170

<u>Appendix #7</u> Monastery 1986 Floor Plans

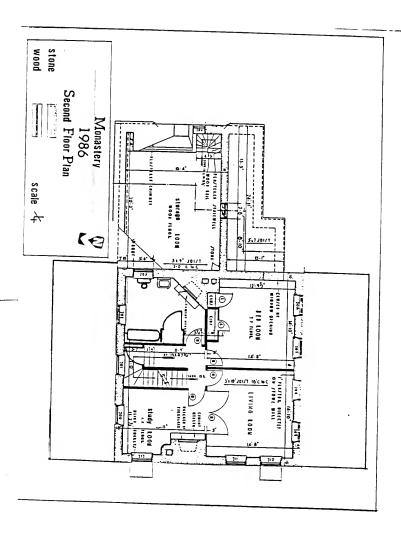
The 1986 floor plans are based on the Historic American Building Survey drawings and the present configuration of the building

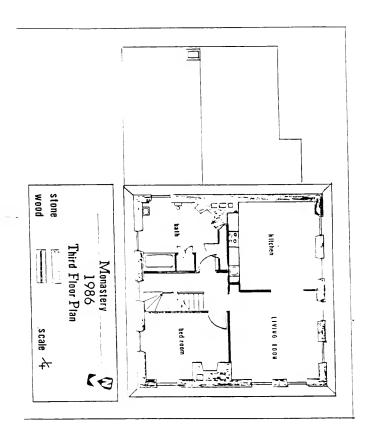


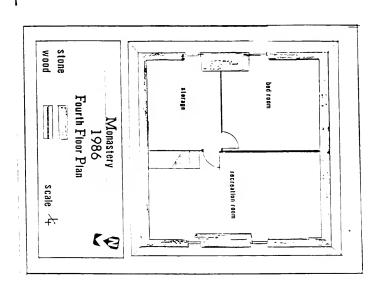






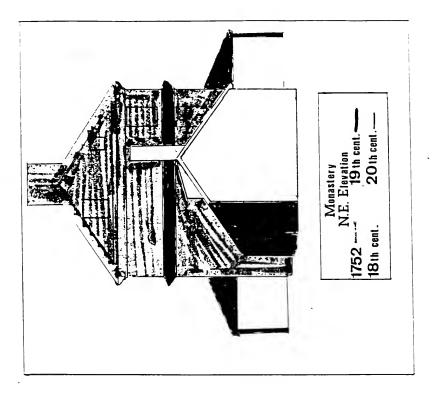


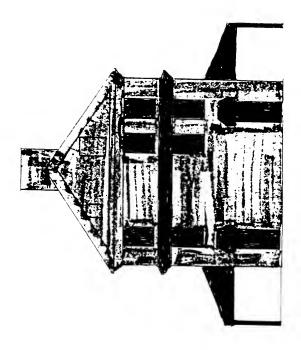






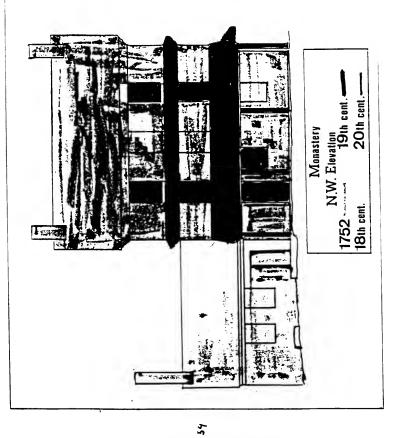
<u>Appendix #8</u> Monastery Building Alterations

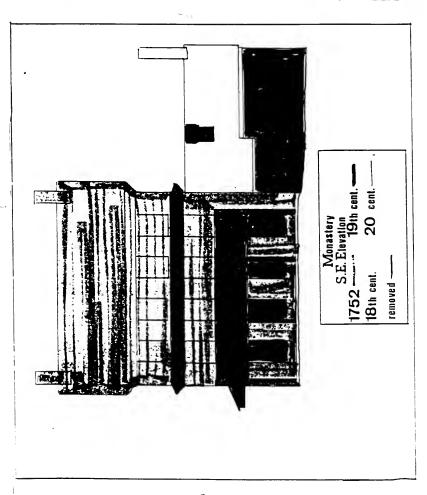




Monastery
S.W. Elevation
1752 ---- 19th cent.
20th cent.

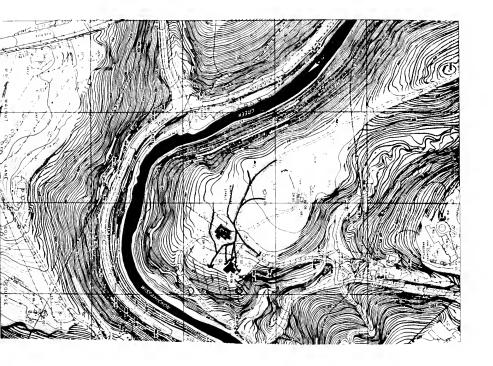
7





<u>Appendix</u> #9 Ground Drainage

One of the problems facing the Monastery is ground water entering the building. This topographical map with the red arrows shows how the water drains on this site. The drainage problem could be eliminated through regrading of the area so that water was directed into existing storm drains. Following photographs demonstrate drainage patterns into the back yard of the building.



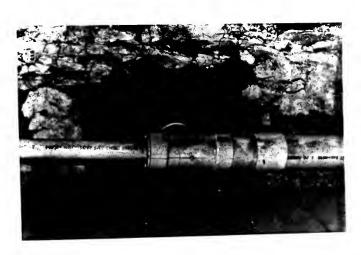




<u>Bependt ble</u> Strutteral Umaci

Crack found in the main building wa. looking from the loft above the kitchen. Below the structural crack plumbing and heating pipes have been introduced through the main buildings exterior wall.





A<u>DDendix #11</u> Exterior Maintenance Problems

The Monastery

Northwest ad Southwest Elevation

The building needs gutters, repairting and repainting. The effect of rising damp are seen on the southwest elevation.





poutheast Elevation

The cornices and porch need repainting. The studio or the first story needs to removed and the Hall Anderneath repaired.

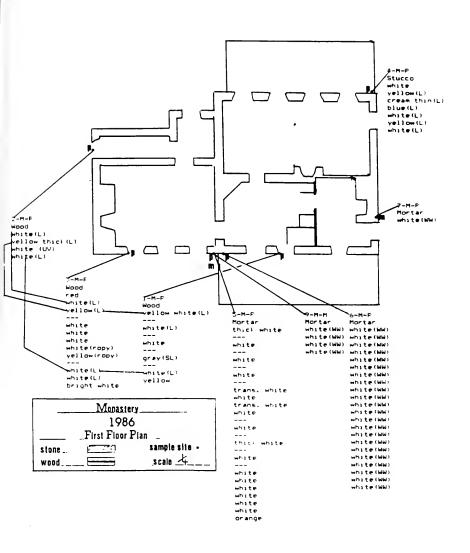


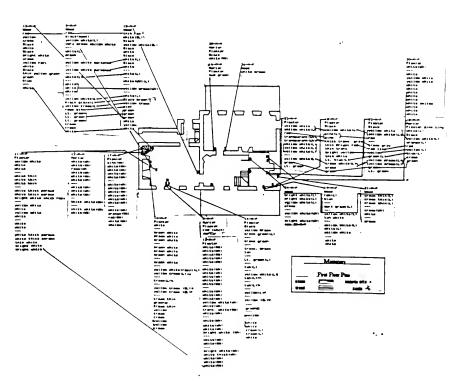
Northeast Elevation
The peaks on the main building and the kitchen wing need repointing.





<u>Appendix #12</u> Monastery Paint Stratigraphy





Appendix #13 Monastery Faint Data Sheets

ructure Manale, b cation of Sample Exhause te Removed A a. 1 1888	Removed By	WAY SWARE MY HAVE	712 PP.10
e Removed April 1868 gnificant Facts Regarding The	e Structure's Hist	ory Which May Pertain	The
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compare to kitchen	oant cample		
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Primer P)		Hydrochloric Acid	(HCI)
Primer P) Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH ₂ C
Shellac (S)		Water	(H ₂ O)
Wall paper (W)		Alcohol	(OĦ)
Fracture ()		Turentine	(TURP
Dirt Layer (-)		Near UV Light	(UV)
Dire Myer ()		mar or brane	(0.7
			
ct.)			
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Waterbased/distemper Varnish Shellac		
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Possible Pigment Type	Spot Test KI	Reaction of
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Butens paint color R.Q.	Sherwin-Willia	ams
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ATA: Microscopic Analysis			
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ote layers of decorative paintin	g, if any: (gr	raining, marbleizing,	polychro
Chromochronology Comment Substrate: \wood Nole White + Dry White + Dry	1003 16. 103 FMB3 FMB3 FMB3 FMB3 FMB3 FMB3 FMB3 FMB	Chromochronology Co	mments

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Glaze (G)				Dimethylformamide	(DMF)
Varnish (V)				Methylene Chloride	(CH_CL
Shellac (S))			Water	(H,0)
Wall paper ((W)			Alcohol	(OĦ)
Fracture (Turentine	(TURP)
Dirt Layer ((-)			Neat UV Light	(UV)
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8. Wh. # - ropu		DMF	23.		
		LME	24.		
9. 11/2 - 10 pie	-		25.		
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13. Brick white		Hela	48.	•	
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Date Removed	Removed	1 By
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Purpose of Phase II Analysi		
No. of Layers to be Studied		
Person for lever Selections		
Visual Characteristics of I	ayer to be Matched: (rel	ative thinness, thickness
glassiness, ropiness, ect.):	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	tratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	DME	+ Softener
Latex		
Whitewash/calcimine		
Waterbased/distemper Varnish		
Shellac		
3112120		
necess Flourescence under near ul Probable pigment associate	traviolet: yesno	Color
Possible Pigment Type	Spot Test	Reaction
1/ { Trongride	K+Fe(CV)	yellows blue
L lead oxide	KIJHO	5/4/1-
2 f lear oxide	Nas	
PIGMENT AND MEDIUM TYPE:	# /	
Probable pigment(s):		
Probable medium:	inseed or	
COLOR: (Match sample to co	\	(m .) #/
Butens paint color	Sherwin-Wil	liams Protocod Red 94325
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		·
Report prepared - Date:	1 23 By Whom:	



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Varnish (V)		Methylene Chloride	
Shellac (S)		Water	(H ₂ O)
Wall paper (W) Fracture ()		Alcohol Turentine	(OH) (TURP
Dirt Laver (-)		Near UV Light	(UV)
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3. CHAM THIN DMG	<u>- 18.</u>		
4. Ply DM	<u>ءِ </u>		
5. white	20.		
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5.	23.		
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13		·	
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Summary:			
<u> </u>			

Structure	mendations .	
Location of Sample		
Date Removed	Removed	Ву
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
Purpose of Phase II Analysis	: #1+2	
No. of Lavers to be Studied		
Reason for Laver Selection:		
Visual Characteristics of La		tive thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate	paint/finishlayer from st	ratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	DMF	_dissolve d
Latex		
Whitewasn/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separat necessar Flourescence under near ult	ry.)	
Probable pigment associated		
Possible Pigment Type	Sant Trans	Reaction
Hillshit a	Spot Test	Reaction
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= = decree : Straining in an		
throm yellow	Silver nitrate	160 12/0V
PIGMENT AND MEDIUM TYPE:		
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Probable medium: #2	illean jellan lu lina	PCA 211
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Primer (P)	Weaction o	Hydrochloric Acid	(Na _n S (HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH_C
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(OH)
Fracture ()		Turentine	TURP
Dirt Layer (-)		Near UV Light	(UV)
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te layers of decora	tive painting, if any: (g	raining, marbleizing,	polychro
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E.)	DRY Comments H.V. Nr. 16 17 18 19 20 21 22 23 24 25 26 27	Chromochronology Co	ments Nar

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Visual Characteristics of L	aver to be Matched: (re)	ative thinness, thickness
glassiness, ropiness, ect.)	:	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	stratigraphy, if necessary.)
Possible medium Oil	Chemical	Reaction
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Whitewash/calcimine	HCI	<u>+</u>
Waterbased/distemper		
Varnish Shellac		
Sherrac		
DEMONIA ANALYSIS		
PIGMENT ANALYSIS: (Separat necessa		om stratigraphy, if
Flaurana		
Flourescence under near ult	raviolet: yesno	, Color
Probable pigment associated	with flourescence:	
Possible Pigment Type	Spot Test	Reaction
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PIGMENT AND MEDIUM TYPE:		
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Probable pigment(s): Whi	ting	
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COLOR: (March and)		
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Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	

Phase I: Sequence of Lavers 6-m- Structure Monastery Location of Sample 4/44	Kitchen Wine West come -
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DATA: Microscopic Analysis	
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Primer (P)	Hydrochloric Acid (HCI)
Glaze (G)	Dimethylformamide DMF)
Varnish (V)	Methylene Chloride CH_CL_
Shellac (S)	Water H_O) ~
wall paper (W)	Alcohol (OH)
Fracture ()	Turentine (TURP)
Dirt Laver (-)	Near UV Light (UV)
	if any: (graining, marbleizing, polychromy
ect.). white wash	
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Chromochronology Comments	Chromochronology Comments
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10	25 26.
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13.	28.
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Summary:	
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Structure		
Location of Sample		F
Date Removed	Kemoved	Ву
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
No. of Layers to be Studied		
Reason for Laver Selection:		
Visual Characteristics of Lave	r to be Matched: (rela	ative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate pai	nt/finishlayer from s	tratigraphy, if necessary.)
Oil	Chemical	Reaction
Latex Whitewasn/calcimine	HCL	
Waterbased/distemper		
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separate processary). Flourescence under near ultray Probable pigment associated with the probable pig	.) violet: yes <u>no</u> /,	Color
Possible Pigment Type	Spot Test	Reaction
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PIGMENT AND MEDIUM TYPE:		
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COLOR: (Match sample to color purposes if approprat	standards; place unde	
Butens paint color	Sherwin-Will	liams
RECOMMENDATIONS		
Colors		
Color: Paint Type:		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	

Phase II: Analysis and Recommendations 6-m-P

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Reaction of Sodium Sulfide	=			
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	yer to be Matched: (relative	
glassiness, ropiness, ect.):		
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Oil	Chemical	Reaction
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Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
DIOWENT ANALYSIS (C	/	
	e paint/finish layer from str	atigraphy, ii
necessa	Ey.)	
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Probable pigment associated	with flourescence:	<u></u>
Possible Pigment Type	Spot Test	Reaction
	=	
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):		
Probable medium:		
COLOR: (Match sample to col	or standards; place under UV	light for bleaching
purposes if appropr		right for breaching
,,,,,,		
Butens paint color	Sherwin-Williams	
RECOMMENDATIONS		
Color:		
raint Type:		
DOCUMENTATION		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	
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ation of Sample Kitting mr. 1958 e Removed Agra. St. nificant Facts Regarding The St. The Analysis (dateconstructed. Kitting mus. 1941).	ucture s mist	lterations, dates pa	inted)
TA: Microscopic Analysis			
DES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(Na S HCI) DMF) CH4C (H4C) OH) TURI
t.)		raining, marbleizing	
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Chromochronology Comment ibstrate: Mortar Planti / ime My The large: of Red	16 17 18 20 21 22 22 22 22 22 22 22 22 22 22 22 22	Chromochronology	Comments
Chromochronology Comment ibstrate: Mortor Plasti / ime 1007 This layer of Red	16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Chromochronology	Comments
Chromochronology Comment ibstrate: Mortar Plant: /ime Mig the lage: The	s 166 177 15 15 192 20 22 22 22 22 22 22 22 22 22 22 22 22	Chromochronology	Comments
Chromochronology Comment ibstrate: Mortar Plastic lime Viry This laye: of Teal	5 16 17 17 18 19 20 20 20 20 20 20 20 20 20 20 20 20 20	Chromochronology	Comments
Chromochronology Comment ibstrate: //orta/ //orta//ime - 1003 / haloge / Ned	5 16 17 15 19 20 21 22 2 2 2 2 2 2	Chromochronology	Comments
Chromochronology Comment ubstrate: /norta/ - //axti /ime - //// Thi lage: J Ted	s 16 17 19 19 20 21 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Chromochronology	Comments
Chromochronology Comment ubstrate: Mrstar Planti / Jime 1/1/17 Tha lage: J Teal 1/1/17 Tha la	5 16 17 17 19 20 20 20 20 20 20 20 20 20 20 20 20 20	Chromochronology	Comments
ubstrate: Mostar Plastic / Jime Viry this layer of Red	s 16 17 19 19 20 21 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Chromochronology	Comments
Chromochronology Comment ubstrate: Msrtar - Plantir / inne - Mr. J.	s 16 17 19 19 20 21 22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Chromochronology	Comments



Phase II: Analysis and Recomme Structure	ndations 8-m-F	
Location of Sample		
Date Removed	Remov	ea By
IN-DEPTH MICROSCOPIC/CHEMICAL		
Purpose of Phase II Analysis_	to determine 1st	layer
No. of Layers to be Studied Reason for Layer Selection: Visual Characteristics of Lay glassiness, ropiness, ect.):	er to be Matched: (re	lative thinness, thickness
MEDIUM ANALYSIS: (Separate pa	int/finishlayer from	stratigraphy, if necessary.)
Possible medium Oil _	Chemical	Reaction
Latex Whitewash/calcimine	ACI	+
Waterbased/distemper		
Varnish		
Shellac _		
Flourescence under near ultra Probable pigment associated Possible Pigment Type		Reaction
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): <u>Tron</u> Probable medium: <u>white</u>	wash	
COLOR: (Match sample to colo purposes if appropra	r standards; place un te.)	nder UV light for bleaching
Butens paint color Zron ox	dered Shervin-W	illiams
RECOMMENDATIONS		
Color: Type:	in line week	
DOCUMENTATION		
		1.7
Sample/slide NO: Report prepared - Date:	19 By Whom:	mV

ructure Monashy cation of Sample Therrer NE W	-P ell Kitchen	was franky mad	L
te Removed	Removed By	Will The Will Make	14
gnificant Facts Regarding The Stru	cture's Hist	tory Which May Pertai	n The
The Analysis (dateconstructed, s			
	 -		
TA: Microscopic Analysis			
DDES -Finish (F)	Reaction of	Sodium Sulfide	(Na _n S
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH_C
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(P(O))
Fracture ()		Turentine	(TURP
Dirt Layer (-)		Near UV Light	(UV)
		_	
		-	
	if any: (gr	aining, marbleizing,	polychro
Chromochronology Comments		Chromochronology Co	
Chromochronology Comments		Chromochronology Co	
Chromochronology Comments ubstrate: Look Red N62.5	16.	Chromochronology Co	
Chromochronology Comments ubstrate: Look	16.	Chromochronology Co	
Chromochronology Comments ubstrate: Look NALS - Black Ship - Sport - Lydler - hik Nal	16. 17.	Chromochronology Co	
Chromochronology Comments ubstrate: Look Red N62.5 Rlack State — 500+ - 1418 — 1418 — 1415	16. 17. 18.	Chromochronology Co	
Chromochronology Comments ubstrate: 600 k Rek 1625 Risch 5624 Bandar ylle 2007	16. 17. 18. 19.	Chromochronology Co	
Chromochronology Comments ubstrate: Look NR2 S Real Slave - Soot Remain yeller with White Na2 S	16. 17. 18. 19. 20.	Chromochronology Co	
Chromochronology Comments ubstrate: Look Red N62.5 Rlack Slack — 500* Liller Shike Ne2.5 Reman yller rate Lank Na2.5 Lank Na2.5 Reman yller rate Reserved 2	16. 17. 18. 19. 20. 21.	Chromochronology Co	
Chromochronology Comments ubstrate: Look Red N62.5 Rlack Slack — 500* Liller Shike Ne2.5 Reman yller rate Lank Na2.5 Lank Na2.5 Reman yller rate Reserved 2	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Co	
Chromochronology Comments ubstrate: Look Red NA2 5 Red Solk — 5007 Letter hit Me2 5 Roman yiller with	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Co	
Chromochronology Comments ubstrate: Look Rek N625 Rlack Slack — 500* Liller Shik N625 Rosans yiller Mars Lhikk Na, 5 Rosans 2	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology Co white whi	omments
Chromochronology Comments ubstrate: Look	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Co	omments
Chromochronology Comments ubstrate: Look Red NA25 Red Solic Solic Remail Wille May 5 Remail Wille May 5 Remail Wille May 5 Remail Wille May 6 Remail Wille May 7 0. Hereman Wille May 7 1. Remain Wille May 7 2. Hereman Wille May 12 And 7 2. Hereman Will May	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Co white white yellow where hash glasse wellow irran Plase grade gran L+. Ct. green Ct. green Ct. green	omments
ubstrate: Look Red Shit - Soot Black Shit - Soot Brown yellow with White May S White May S Yellow white boxa ? Office white boxa ? 1. Brown yellow Brown ? 2. 3. John W. Mars	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology Co white white yellow When Lack State wellow I man Thase profe irrian Ci green Ci green Circan Fram Charles	omments
Chromochronology Comments ubstrate: Look Red NA25 Red Solic Solic Remail Wille May 5 Remail Wille May 5 Remail Wille May 5 Remail Wille May 6 Remail Wille May 7 0. Hereman Wille May 7 1. Remain Wille May 7 2. Hereman Wille May 12 And 7 2. Hereman Will May	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Co white white yellow where hash glasse wellow irran Plase grade gran L+. Ct. green Ct. green Ct. green	omments
Chromochronology Comments ubstrate: Look Red NA25 Real slate - 5007 White May 5 Remane yellow white Remane yellow white Remane yellow white was 1. Reman yellow Remane 2. Ship Now 100 Remane 3. Lake Na25 4. Ship Na25	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology Co	omments
Chromochronology Comments Bek	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology Co	omments

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Phase II: Analysis and Recom	mendations 4 '''	
Structure Location of Sample		
Date Removed	Re	moved By
pace Kemoved		
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
D TT toolwais	. #1	
rurpose of Phase II Analysis		
No. of Layers to be Studied		
D C 1 C-1		
Visual Characteristics of L	aver to be Matched:	(relative thinness, thickness
glassiness, ropiness, ect.)	:	
MEDIUM ANALYSIS: (Separate	naint/finishlaver fi	rom stratigraphy, if necessary.)
MEDIUM ANALISIS: (Separate	parme, riminitely er	
Possible medium	Chemical	Reaction
011	Dmf	dusolved
Latex		
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
		, Color
Probable pigment associate	d with flourescence:	
Possible Pigment Type	Spot Test	Reaction
(ren oride	, ~	Blu Color
Charles and	~	
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):	ron axide	
Probable pigment(s): 7	seck oil	
COLOR: (Match sample to co	prate.)	e under UV light for bleaching سناه درم
	.	2 1 00.4
Butens paint color	Sherwi	n-Williams Bookwood Red 94325
RECOMMENDATIONS		173 63
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: 9-1	7-8	
Sample/slide NO: 9-1 Report prepared - Date: 1	7/ 24 By Whom: _	mv

Phase I: Sequence of Layers 10 - m Structure monasters Location of Sample Tolling NC M Date Removed Apr. 1965	all Paint	0	bone fraplace m	189+-	<u>e</u>
Significant Facts Regarding The Stri To The Analysis (dateconstructed,	Removed B acture's Hi	st	ory which May Pert	ain T	he ed)
		· a		parine	_
		_			_
DATA: Microscopic Analysis	_		 		_
CODES -Finish (F)	Reaction o	of	Sodium Sulfide		(Na _n S)
Primer (P)			Hydrochloric Acid		(HCI)
Glaze (G)			Dimethylformamide		(DMF)
Varmish (V)			Methylene Chloride	2	(CH,CL,
Shellac (S)			Water		(H ₂ 0) -
Wall paper (W)			Alcohol		(PO)
Fracture ()			Turentine		(TURP)
Dirt Layer (-)			Neat UV Light		(UV)
					—
					
Note layers of decorative painting, ect.).	if any: (g	gra	aining, marbleizin	g, pol	ychromy
Chromochronology Comments			Chromochronology	Comme	ents
Substrate: Plaster			C-A-	A1	_
1. white			Cream	1462	7
3. Broach white			CHAM 44 //OV	ÃĮ.	Slickt
4.	 ;	9.	(Nam 18/100	7167	- 1. Z. Z.
5. Brown white			THAM JETTER	-/XA-Z	3 - 45 -
6. Broke waste		1.	Thin (MEC)		
7. Room my be		2.	men		
8		3.	this trem		
9. Brown white		4.		$\overline{}$	mF
10. Brown when	2	:5.	(ř. 1m		!
11. = -	2	26.	- Cram		
12. Promy white	2	27.	nellow		i
13. Itella ml. m. Mari	2	28.			1/
14. Millow (Kam Nozs	2	29.	CNA		V
15.	3	٠.O			
Summary:					

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Phase II: Analysis and Recomme	endations p	
Structure Location of Sample		
Date Removed	Remove	ed By
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
No. of Layers to be Studied	27	
Reason for Layer Selection:		
Visual Characteristics of Lav	er to be Matched: (re:	ative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate pa	ant/finishlayer from	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
011	DME	_
Latex		
Whitewash/calcimine	HC-	1
Waterbased/distemper		
Varnish		
Shellac		
Recessary Flourescence under near ultra Probable pigment associated v	aviolet: yes no	, Color
Possible Pigment Type	Spot Test	Reaction
	H250.	Jone needles
		
		-
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Probable medium: Calcim	IM.	
		on IN light for bloods
COLOR: (Match sample to color	r scandards; prace mud	er ov light for bleaching
-\	te.) to match tolor / Da	k smoke
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
ACCOUNTED TO TO TO		
Color:		
Paint Type: while wash		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	
-, proporce Date.	ט,	

Phase I: Sequence of Layers II - M Structure Monaster - Location of Sample Total Mark Date Removed April 1955 Significant Facts Regarding The Sti To The Analysis (dateconstructed,	Removed By	Aula beems NV5 Eory Which May Pertain laterations, dates pa	n The
	-		
DATA: Microscopic Analysis	***		
CODES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(Na_S) (HCI) (DMF) (CH_CL_2 (H_O) (Ofi) (TURP) (UV)
Note layers of decorative painting	. if any: (gr	aining, marbleizing,	polychromy
ect.)			<u> </u>
Chromochronology Comments Substrate: Player 1. Gellow white 2. White 3. White 5. White 6. White Yahan	16. 17. 18. 19.	white white	
7. white takk perons 10. white takk perons 11. Arithmatic perons 12. 13. Gellow waite	23. 24. 25. 26. 27.	This point Bright where Rught white	
14. white 15. juline white Summary: No reaction w/Naz		•	
Reacted w/ +1NO3			



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Phase II: Analysis and Recom	mendations // "	
Structure Location of Sample		
Date Removed	Remove	d By
Pere Vemoten	уещо че	u 57
IN-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
Purpose of Phase II Analysis	 	
No. of Layers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of La	yer to be Matched: (rel	ative thinness, thickness
glassiness, ropiness, ect.):	•	
WEDTIN ANALYSTS, (S		
MEDIUM ANALYSIS: (Separate p	aint/finishiayer from s	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
0i1	DMF	
Latex		
Whitewash/calcimine	HNOS	
Waterbased/distemper		
Varnish		
Shellac		
0.10124		
		
		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ultr Probable pigment associated	:y.) :aviolet: yes no /	Color
Possible Pigment Type	Spot Test	Reaction
Whiting		7 evolution of que
		//
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):		
Probable pigment(s):	y has h	
COLOR: (Match sample to col purposes if appropr		er UV light for bleaching
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: //- M - / Report prepared - Date: 3/		· .
Keport prepared - Date: <u>ਹ।</u>	By Whom: /h	[13]

Cation of Comple	1 N/1	1.1.11 11.1.1	A 4 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11
ocation of Sample	10000	Removed By	en wag, whitewash	3/42 (1, 14
ignificant Facts Reg				
The Analysis (dat	arding the Struc	cture s nis	tory which may Pert	ain The
, the khalysis (dat	econstructed, S.	ignilicant (alterations, dates	painted)
				
ATA: Microscopic Ana	lysis			
ODEC E: (E)				
ODES -Finish (F)	1	Reaction of	Sodium Sulfide	(Na _n S)
Primer (P)			Hydrochloric Acid	(HCI)
Glaze (G)			Dimethylformamide	
Varnish (V)			Methylene Chloride	
Shellac (S)			Weter	(H ₂ 0)
Wall paper (W)			Alcohol	(OĦ)
Fracture ()			Turentine	(TURP)
Dirt Layer (-)			Near UV Light	(UV)
	_			
	_			
	_			
ote layers of decore	tive painting,	if any: (gr	aining, marbleizing	, polychrom
Chromochronol		if any: (gr		
Chromochronol	ogy Comments	·	Chromochronology	Comments
Chromochronol ubstrate: <u>الاهزن</u>			Chromochronology	
Chromochronol ubstrate: P(wto	ogy Comments	1617.	Chromochronology transluvat white	Comments
Chromochronol ubstrate: Plate - white	ogy Comments	16. 17. 18.	Chromochronology transluvent white	Comments
Chromochronol ubstrate: P(tytis - white	ogy Comments	. 16. 17. 18. 19.	Chromochronology transluvent with to by the	Comments
Chromochronol ubstrate: Plate - White	ogy Comments	. 16. 17. 18. 19. 20.	Chromochronology translated white white white	Comments
Chromochronol ubstrate: Playto - white	ogy Comments	16. 17. 18. 19. 20.	Chromochronology translated to hite the here white the here	Comments
Chromochronol ubstrate: Plytte - white - white - white	ogy Comments	16. 17. 18. 19. 20. 21.	Chromochronology translucent white white white white broken whate	Comments
Chromochronol ubstrate: Plytts - white - white - white	ogy Comments	16. 17. 18. 19. 20. 21. 22. 22.	Chromochronology transluce to be the be by the white bright what	Comments
Chromochronol ubstrate: P(kyre - white - white - white	ogy Comments	. 16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology treasilized white white white brich white	Comments
Chromochronol ubstrate: Plytte - white	ogy Comments	. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology translucent white white white bright white white white white	Comments
Chromochronol ubstrate: Playto white white white white white white white	ogy Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology translated to be the the pre white bright whate white white	Comments
Chromochronol ubstrate: Playte - white	ogy Comments	. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 27.	Chromochronology transluce twiste be he te white brich white white brich white how he te brich white	Comments
Chromochronol ubstrate: Plytts - white	ogy Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology treashwat white white bright white bright white bright white	Comments
Chromochronol ubstrate: P(s,rro - white	ogy Comments AC!	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology treashwat white white bright white bright white bright white	Comments
Chromochronol ubstrate: P(s,rro - white	ogy Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology transluce twiste be he te white brich white white brich white how he te brich white	Comments
Chromochronol ubstrate: P(syre white - whit	ogy Comments AC!	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology treashure twiste white white bright white bright white bright white	Comments
Chromochronol ubstrate: Playto - white	ogy Comments AC!	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology treashast white white brich white	Comments
Chromochronol ubstrate: P(1,711) white	ogy Comments AC!	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology treashure twiste white white bright white bright white bright white	Comments

ocation of Sample		
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N-DEPTH MICROSCOPIC/CHEMICA	I ANALYSTS	
DE IN HICKOSCOI IC/ CHEMICA	B RINGIOIO	
urpose of Phase II Analysis		
o. of Layers to be Studied_		
eason for Layer Selection:		
isual Characteristics of La lassiness, ropiness, ect.):	yer to be Matched: (rela	tive thinness, thickness
iassiness, ropiness, ecc.,.		
EDIUM ANALYSIS: (Separete p	aint/finishleyer from st	ratigraphy, if necessary.
Possible medium	Chemical	Reaction
0i1		
Latex		
Whitewash/calcimine		4
Waterbased/distemper Varnish		
Shellac		
Shellac		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ultra Probable pigment associated	raviolet: yesno,	(m %.
Possible Pigment Type	Spot Test	Reaction
		7
PICMENT AND MEDIUM TYPE:		
PIGMENT AND MEDIUM TYPE: Probable pigment(s):		
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium:	Lite wash with whit	'ns
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	or standards: place under	ńs
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col	or standards; place under	r UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropr	or standards; place under	r UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropring purpose if appropring purposes if appropring purposes if appropring purposes if appropring purposes if appropring purpose if appropring purposes if appropring	or standards; place under ate.) Sherwin-Will:	r UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropr Butens paint color RECOMMENDATIONS Color:	or standards; place under	r UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropr Butens paint color RECOMMENDATIONS Color:	or standards; place under ate.) Sherwin-Will:	r UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropring buttens paint color RECOMMENDATIONS	or standards; place under ate.) Sherwin-Will:	r UV light for bleaching

The Analysis (dateconstruct	Removed By Structure's Hist	tory which May Pertain alterations, dates pa	ın The
ATA: Microscopic Analysis			
DDES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(HCI) (DMF)
ote layers of decorative pain	ting, if any: (gr	aining, marbleizing,	polychro
Chromochronology Comm ubstrage: いっと		Chromochronology C	Comments
ubstrate: wook · ((0) · \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	16. 17. 18.	white	JMF_
ubstrage: wood Red Red Correction Location Location	16. 17. 18. 19. 20. 21. 22. 23.	white	JME.
ubstrate: wood Red Red Trim Trim Tricket water	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28	white	DME

Phase II: Analysis and Recom Structure	mendations (FM-F	
Location of Sample		
Date Removed	Removed By	
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
Purpose of Phase II Analysis	5	
N		
No. of Layers to be Studied Reason for Layer Selection:		
Visual Characteristics of I	ayer to be Matched: (relative	Thispage thiskers
glassiness, ropiness, ect.):	·	thimess, thickness
3	·	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from strati	graphy, if necessary.)
Possible medium	Chemical	Reaction
0i1	<u>DMF</u>	_ Softens
Latex		
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
necessar	raviolet: yes no . Colo	
7-0	True riourescence.	
Possible Pigment Type	Spot Test	Reaction
#1 Tron oxido	Patrician Ferrocymids	Reaction Blue off
#Z lead		مدراه
		7
PIGMENT AND MEDIUM TYPE:		
Probable nigment(s):		
Probable pigment(s): Probable medium:		
COLOR: (Match sample to col	or standards; place under UV	light for bloods
purposes if appropr	ate.)	right for bleaching
		0 / -
Butens paint color	Sherwin-Williams	Rookwood Rea
Λο Λ	netch	
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCTOR TO THE OWNER OF THE OWNER O		
DOCUMENTATION		
Sample/slide NO: Report prepared - Date:	313	
weport prepared - pate:	by whom:	

TA: Microso	opic Analysi					_
Shella Wall p Fractu	· P)		Reaction	of Sodium Sulf Hydrochlori Dimethylfor Methylene (Water Alcohol Turentine Near UV Lig	ic Acid rmamide Chloride	(Na_S) (HCI) (DMF) (CH_CL_ (H_O) - (OH) (TURP) (UV)
ote lavers of	of decorative	painting,	if any: (graining, mark	bleizing, p	oolychromv
Chronubstrate:	nochronology	transpo	if any: (graining, mark		
Chronubstrate:	nochronology Plaster Yellow 6	Comments	arot Br	Chromochron	nology Com	
Chronibstrate: 1	nochronology Plaster Vellau 6 At 14 gmen	Comments	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Chromochron 6. Tan 7. Rlack lin 8. Yellow	nology Com	
Chronibstrate: 1 Recent Transluce Black in	mochronology Plaster Yellow G At 14 gren ne	Comments		Chromochron	nology Com	aments
Chronibstrate: Brown Transluce Black in Transluce Dack live	mochronology Plaster Yellow G at 14 green	Comments	1	Chromochron	nology Com	
Chrorotostrate: 1 Brown Transluce Black in Transluce Transluce Transluce Transluce	mochronology Plaster Yellow G At 14 gren At 14 gren At 14 gren At 18 gren	Comments		Chromochron	nology Com	s on
Chronibstrate: 1 Rrown Transluce Black li Transluce Transluce Tan	mochronology Plaster Yellaw G St. Li gren ne ne ne ne ne ne ne ne ne	Comments	1	Chromochron Chrom	nology Con	aments
Chronobstrate: Brown Translucce Black li Translucce Translucce Tan Black li Chronobstrate Chr	mochronology Plaster Velleu G at 14 gran ne ne ne ne ne ne ne	Comments	1	Chromochron 6. Tan 7. Black line 9. Glack line 9. Wellow 9. Black line Green	nology Con	DMF
Chronibstrate: Brown Translucer Transl	mochronology Plaster Velleu G at 14 gran ne ne ne ne ne ne ne	Comments	1	Chromochron Chrom	nology Con	nments S S Out S D M F
Chron Brown Tyansluce Dack li Tyansluce Tansluce T	mochronology Plaster Velleus G at 11 green ne the H green ne the Brown ne ne	Comments	1	Chromochron 6. Tan 8. Nellow 9. Wallow 10. Vellow 11. Sheet line Green 4. Vellow 12. Sheet line 13. Gardin 14. Vellow 15. white	nology Con	DMF DMF
Chronibstrate: 1 Brown Transluce Dock in Transluce Tran	mochronology Plaster Velleus G at 11 green ne the H green ne the Brown ne ne	Comments Hugs Hugs Hugs Hugs Hugs		Chromochron Chrom	nology Con	DMF
Chroniubstrate: 1 Brown Transluce Dack III Transluce Tr	mochronology Plaster Velley G at 11 green ne ne ant 3 green ne line line	Comments Hugs Hugs Hugs Hugs Hugs	1	Chromochron 6. Tan 8. Nellow 9. Wallow 10. Vellow 11. Sheet line Green 4. Vellow 12. Sheet line 13. Gardin 14. Vellow 15. white	nology Con	DMF

Phase II: Analysis and Recomm	endations 14-m-P	
Structure Location of Sample		
	Remove	a Bv
Date Removed		
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
	 	
No. of Layers to be Studied Reason for Layer Selection: Visual Characteristics of Lay	Layer XX 1, 2	
Visual Characteristics of law	er to be Matched: (re	arive thinness, thickness
glassiness, ropiness, ect.):_	This to a make	
g- 	_ rate rapine 33	
MEDIUM ANALYSIS: (Separate pa	unt/finishlayer from :	stratigraphy, if necessarv.)
Possible medium	Chemical	Reaction
Oil		
Latex	Dar-	* +
	it (e	+
Waterbased distemper		
Varnish		
Shellac		
-		
Flourescence under near ultr Probable pigment associated	aviolet: vesnov with flourescence:	, Color
Possible Pigment Type	Spot Test	Reaction
culcimine	Ha soy	_ _ +
		_
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):	1 cimin	
Probable medium:	nacedoul	
COLOR: (Match sample to color purposes if appropria		mer UV light for bleaching
purposes in appropra	ice.	
Butens paint color	Sherwin-Wi	lliams
RECOMMENDATIONS		
NECOLULIANT TONO		
Color: while Lis	mt ·	
Paint Type: Losed o	1	
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	

					
: Microscopic Analys	is				
ES -Finish (F) Primer (P) Glaze (G)	R	eaction	of	Sodium Sulfide Hydrochloric Acid Dimethvlformamide	(HCI)
Varnish (V) Shellac (S) Wall paper (W)				Methylene Chloride Water Alcohol	(H ₂ 0) (OH)
Fracture () Dirt Laver (-)				Turentine Neaf UV Light	(UV)
e lavers of decorative				aining, marbleizing	, polychr
e lavers of decorative.). 2 /wys				aining, marbleizing	
Chromochronolog	राज ची वृह				
Chromochronolog	y Comments	<u> </u>	16.	Chromochronology	Comments
Chromochronolog	y Comments	<u> </u>	16. 17.	Chromochronology	Comments
Chromochronolog	y Comments		16. 17. 18.	Chromochronology Yelloweicam white	Comments UV
Chromochronology Chromochronology Strate: wool Ted - Thin white 5 Caloze- white 5	राज ची वृह	aunine (16. 17. 18. 19.	Chromochronology Yellowerson White Brown Glaze	Comments UV VajS
Chromochronology Strate: Wood Yed - Non White S Colore- White yellows SI	y Comments	auning	16. 17. 18. 19. 20.	Chromochronology Yellow Cica m Wite Brown Glaze Yellow Cica m Piak	Comments UV
Chromochronology Strate:	y Comments	auning	16. 17. 18. 19. 20. 21.	Chromochronology Yellowercam White Rooma Glore Yellowercam Piak Green	Comments UV VajS
Chromochronology Strate: Wood Yed - Thin Share S Calaze - White yellow S Calaze - White yellow S Calaze - White white S Calaze - White white S Calaze - White White A	y Comments	auning	16. 17. 18. 19. 20. 21. 22.	Chromochronology Yellowerson White Bown Glore Yellowerson Phar Prak Green	Comments UV VajS
Chromochronology Strate: wood red - Thin white 5 Caloze white 5 Gloze white Gloze white Gloze	y Comments	auning	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology Yellowerson Room Glaze Yellowerson Biak Green Green	Comments UV VajS
Chromochronology Chromochronology Strate: Lucocl Ted -Thin Luchte S Colore - Luchte yellow Colore White	y Comments	auning	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Yellow cica m White Room Glaze Yellow cica m Phak Green Green Green	Comments UV VajS
Chromochrono.og: Strate: wood Yed Thin White S Coluze- white yellow S Glaze White de lara White	y Comments	auning	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Yellowerson White Room Glaze Felhowerson Green Green Green White Willow	Comments UV VajS
Chromochronology Strate: wood Yed Thin white S Glaze white Glaze white Glaze white Glaze white Glaze white	y Comments light was light was	auning	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Yellow cica m White Room Glaze Yellow cica m Phak Green Green Green	Comments UV VajS
Chromochrono.og: Strate: wood Yed Thin white S Glaze White Glaze White Glaze White Glaze White	y Comments light was light was	auning	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Yellowerson White Room Glaze Felhowerson Green Green Green White Willow	Comments UV VajS

Structure Constant		
Location of Sample		
Date Removed	Remov	red By
IN-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
Purpose of Phase II Analysis	Layer 1, 2, 3	
No. of Layers to be Studied_	1. 2. 3	
Reason for Laver Selection:	•	
Visual Characteristics of La	yer to be Matched: (re	elative thinness, thickness
glassiness, ropiness, ect.):	Red Very Threk -	-ropiness,
2nd layer Shows	DIUSA MAIA	
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from	stratigraphy, if necessary.
Possible medium	Chemical	Reaction
Oil	DM4	
Latex		
Whitewasn/calcimine Waterbased/distemper	Ha.	
Varnish		
Shellac		
		
PIGMENT ANALYSIS: (Separate necessar	·y.)	
Flourescence under near ultr Probable pigment associated	with flourescence:	_, Color
Possible Pigment Type	Spot Test	Reaction Franke + Blue P
		- Bize
white	Kr	_ +
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): I Iv	on oxide	* a Lead white
Probable mealum: 🔀 /	alcimine	2 Calcimine
COLOR: (Match sample to colopurposes if appropri	or standards; place un	
Butens paint color <u>Îron</u>	stee Ree Sherwin-Wi	lliams
RECOMMENDATIONS		

Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	

	constructed, s	cture's His	lterations, dates	painted)
				
			-	
TA: Microscopic Anal	ysıs			
DES -Finish (F)		Reaction of	Sodium Sulfide	(Na S)
Primer (P)		Medecion or	Hydrochloric Acid	(HCI)
Glaze (G)			Dimethylformamide	(DMF)
Varnish (V)			Methylene Chloride	
Shellac (S)			Water	(H ₂ O) ~
wall paper (W)			Alcohol	(FO)
Fracture ()			Turentine	(TURP)
Dirt Laver (-)			Ne ar UV Light	(UV)
	_			
	-			
te layers of decorat	ive painting,	ıf any: (gr	aınıng, marbleizın	g, polvchromv
Chromochronol	ogy Comments		Chromochronology	
Chromochronolo	ogy Comments		Chromochronology	
Chromochronoloubstrate: Plance	ogy Comments H(L	16. 17.	Chromochronology	Comments
Chromochronolo sbstrate: Plaster Pink white	ogy Comments H(L	16. 17.	Chromochronology	Comments
Chromochronolo Strate: Tlaster Fink Libite Chite	ogy Comments H(L +	16. 17. 18.	Chromochronology	Comments
Chromochronolo Ubstrate: Tlaster Pink Luhite Luhite Luhite Luhite	ogy Comments H(L	16. 17. 18. 19.	Chromochronology rcd + thit +	Comments
Chromochronolo Strate: Plaster Pink white white white	ogy Comments HCL +	16. 17. 18. 19. 20.	Chromochronology red + white + Yellow	Comments
Chromochronolo ubstrate: Tlader Fink Linke Linke Linke	ogy Comments HCL t t t	16. 17. 18. 19. 20. 21.	Chromochronology Yed + White + Yellou	Comments
Chromochronolo ubstrate: Tlaster Pink Luhite Luhite Luhite Luhite Luhite Luhite Luhite Luhite	ogy Comments H(4) + T t + + +	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology red + white + Yellou	Comments
Chromochronolo Ubstrate: Plaster Pink White White White White White White	ogy Comments H(L) + + + + + + + + + +	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology red + white + Yellow	Comments
Chromochronolo Chromochronolo Distrace: Tlaster Fink White White White White White White White White	ogy Comments HCL t t t t t	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Yed + White + Yellou	Comments
Chromochronolo Strate: Tlaster Pink white white white white white white white white	ogy Comments HCL t t t t t t	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology red + white + Yellou	Comments
Chromochronolo Chromochronolo Dink Lihite Lihite	ogy Comments HCL t t t t t t t t t t t t t	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Yed + White + Yellow,	Comments
Chromochronold Chromochronold Distrate: Plaster Pink White	ogy Comments H(L) + + + + + + + + + + + + +	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology red + white + Yellow	Comments
Chromochronolo bstrate: Ylaster Fink white	ogy Comments H(L) + + + + + + + + + + + + +	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology nee ycd + white + Yellou	Comments

Structure	mendations (/- W-F	
Location of Sample		
Date Removed	Removed	By
IN-DEPTH MICROSCOPIC/CHEMICAL	L ANALYSIS	
Purpose of Phase II Analysis		
No. of Layers to be Studied_ Reason for Layer Selection:		
Visual Characteristics of La glassiness, ropiness, ect.):	yer to be Matched: (rela	ative thinness, thickness
MEDIUM ANALYSIS: (Separate pa		tratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Cil	DM 5	-
Latex		
whitewasn/calcimine	- HALAS	+ Hasay - rysta
haterbased/distemper		- 1 1
\armish		
Shellac		
		
		*
FIGMENT ANALYSIS: (Separate necessar Flourescence under near ultr Probable pigment associated	y.) aviolet: ves no 🗸.	
Possible Pigment Type	Spot Test	Reaction
Lend Red	KI	
Lake Pigment	- Ha Sey	
Iron Axide	HCI + Potassion	Ferocyanida +
PIGMENT AND MEDIUM TYPE:	Sample formal con	tuminated w/ Iron
Probable pigment(s): Lon Probable medium: calcin	oxide	
TODADIE MEGIUM. CALCIN	ALD L	
COLOR: (Match sample to color purposes if appropria		r UV light for bleaching
Butens paint color and Pink		iams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	

The Analysis (dateconstructe		, ,	inted)
TA: Microscopic Analysis			
DES -Finish (F)	Reaction of	Sodium Sulfide	(Na _n S)
Primer (P)	medetion of	Hydrocnloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH_CL_
Shellac (S)		Water	(H ₂ 0) ²
Wall paper (W)		Alcohol	(HO)
Fracture ()		Turentine Near UV Light	(TURP) (UV)
Dirt Layer (-)		Near UV Light	(01)
· · · · · · · · · · · · · · · · · · ·			
	ing, if any: (gi	aining, marbleizing,	polychromv
Chromochronology Commercial Comme	16 17 18 19 20 21 22 23 24 25 26	Chromochronology Co	mments
Chromochronology Comme Chromochronology Comme Chroze Plaster Pink Pink Thick Translurant gray Thin Fright Red Thick Translurant Pink This Translurant This White Chrom white Chrom white Coram white Logs Coram white	16 S 17 18 19 20 21 22 23 24 25 26 27	Chromochronology Co	omments
Chromochronology Comme ubstrate: Plaster Gleze Yellow white Mays Pink Thick Transment cry Thin Electrical Breat vollow Think white Otto Think white Otto Think white	166 S 17 18 19 20 21 22 23 24 25 26 26 22 28	Chromochronology Co	mments

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Phase II: Analysis and Rec Structure Monaster	commendations 18-m-P	
Date Removed April	1988 Removed	By hv
	ICAL ANALYSIS	
Purpose of Phase II Analy	sis **	
No. of Layers to be Studi	ed	
Visuel Characteristics of	Layer to be Matched: (rela	tive thinness, thickness
glassiness, ropiness, ect):	
MEDIUM ANALYSIS: (Separat	e paint/finishlayer from st	cratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	#1.2 DMF	Softend
Latex	21,2	
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
•		
Flourescence under near	ultraviolet: yes no /,	Color
Probable pigment associa		
Possible Pigment Ty	rpe Spot Test	Reaction
*/ fond white	KI	Yellow PPT
# 2 Iron oxide	HCI + Ky FC (C)	A)C BIRC PAL
PIGMENT AND MEDIUM TYPE	;	
Probable pigment(s):	Sa. a from	
Probable medium:	2 2 4 6 Q Q L L	
purposes if app	color standards; place und roprate.)	er UV light for bleaching
Butens paint color *2	Bitter succet Py Shervin-Wil	liams
	needs more	Drange.
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample slide NO: Report prepared - Date:	D- 12	
Report prepared - Date:	EA MUOM:	

		· · · · · · · · · · · · · · · · · · ·	
TA: Microscopic Analysis			
DES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(Na_S (HCI) (DMF) (CH_O (H_O) (OH) (TURE (UV)
t.)			
Chromochronology Con	mments .	Chromochronology Co	mments
Chromochronology Combstrate: Wood Ref Ave.	ments 16.	Chromochronology Co	mments
Chromochronology Conbstrate: Wood Red Wo	ments 16.	Chromochronology Co	mments
Chromochronology Cor bstrate: Wood Rud 114 Glve Dack breen U	16. 17. 18. 19. 20.	Chromochronology Co	uments
Chromochronology Con bstrate: Wood Red Wa Alve Dack breen Yellow white A	ments 16. 17. 18. 20. 20. 20. 21. 21. 21. 21. 21. 21. 21. 21. 21. 21	Chromochronology Co	nments
Chromochronology Con bstrate: Wood Red Wa Alve Dack breen Yellow white A	16. 17. 18. 43.5 19. 20. 21. 22.	Chromochronology Co	mments
Chromochronology Con bstrate: Wood Red Wood Red Wood Red Wood The Chreen Yellow white tan white	ments	Chromochronology Co	mments
Chromochronology Con betrate: Wood Red Wood Red Wood The Dark breen W Yellow white Yellow white	ments 16. 17. 18. 20. 20. 21. 22. 23. 24.5 24.5 24.5 24.5 24.6	Chromochronology Co	uments
Chromochronology Con bstrate: Wood Red Wood Rue Dack breen Yellow white Yellow white Wellow white	ments	Chromochronology Co	uments
Chromochronology Con bstrate: Wood Red Wood Alve Dack Green W Yellow white Yellow white Vellow white	ments 16. 17. 18. 4.5. 19. 20. 21. 22. 23. 24. 24. 25. 26.	Chromochronology Co	mments
Chromochronology Con betrate: Wood Red Wood Alve Dock Green W Yellow white Yellow white Wellow white	ments 16. 17. 18. 19. 20. 21. 22. 23. 24. 24. 25. 26. 27.	Chromochronology Co	nments
Chromochronology Combistrate: Wood Chromochronology Combistrate: Wood Park fire n Yellow white Yellow white Yellow white Yellow white Yellow white	ments 16. 17. 18. 4.5 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Co	mments

Phase II: Analysis and Recoms		
Date Removed 101 /18	Removed By	barr (
IN-DEPTH MICROSCOPIC/CHEMICA		- mixig
Purpose of Phase II Analysis	¥1, ×2	
No. of Lavers to be Studied Reason for Layer Selection: Visual Characteristics of La glassiness, ropiness, ect.):	yer to be Matched: (relativ	e thinness, thickness
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from strat	igraphy, if necessary.)
Possible medium Oil Latex	Chemical D 705	Reaction
Whitewash/calcimine Waterbased/distemper Varnish	H CL	
Shellac		
necessar	•	
Flourescence under near ultr Probable pigment associated	raviolet: yesno/, Col with flourescence:	lor
Possible Pigment Type **I Red [sad] Tron **2 Rlue Ultramaxing	Spot Test KI Ky is ((N))	Reaction Yellow PH Blue Color Change
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Lead	oxide + Iron oxide	
COLOR: (Match sample to color purposes if appropra	ate.)	
Butens paint color	Sherwin-Williams	
RECOMMENDATIONS		
Paint Types	de + head in whitevi	MALA Calcimine
DOCUMENTATION		
Sample/slide NO:	By Whom:	

gnificant Facts Regardi The Analysis (datecon	Removed By ng The Structure's Hist structed, significant a	ory which May Pertai lterations, dates pa	inted)
133/2 100)	CO AFTC 1848		
			
TA: Microscopic Analysi	.s		
DDES -Finish (F)	Peecrion of	Sodium Sulfide	(Na _s S
Primer (P)	REACCION OI	Hydrochloric Acid	HCI
Glaze G)		Dimethylformamide	DMF
Varnish (V)		Methylene Chloride	
Shellac (S)		Water	H_0
Wall paper (W)		Alcohol	(HO)
Fracture ()		Turentine	TUR
Dirt Layer (-)		Near UV Light	(UV)
	e painting, if any: (gr	anning, marbleizing,	polychr
Chromochronology		Chromochronology	
Chromochronology	Comments 16.	Chromochronology (Comments
Chromochronology	Comments 16.	Chromochronology (Comments
Chromochronology ubatrate: - white	Comments	Chromochronology (Comments
Chromochronology ubstrate: - white - white - white - white	Comments 16.	Chromochronology (Comments
Chromochronology what received the control of the	Comments 16. 17. 19. 19. 19. 19. 20	Chromochronology (Comments
Chromochronology	Comments 16.	Chromochronology (Comments
Chromochronology ubstrate: uhit uhit uhit uhit uhit uhit uhit	Comments 16. 17. 19. 19. 19. 19. 20	Chromochronology (Comments
Chromochronology	Comments 16. 17. 17. 19. 19. 20. 21. 22. 23. 22. 23. 22. 23. 22. 23. 22. 23. 24. 25. 25. 25. 25. 25. 25. 25. 25. 25. 25	Chromochronology (Comments
Chromochronology ubstrate: ubsite uhite	Comments 16. 17. 19. 20. 20. 21. 22. 23. 24.	Chromochronology	Comments
Chromochronology ubstrate: Link Li	Comments 16. 17. 19. 20. 21. 22. 23. 23. 24. 25.	Chromochronology (Comments
Chromochronology ubatrate: - white - w	Comments 16. 17. 20. 20. 21. 22. 23. 24. 25.	Chromochronology C	Comments
Chromochronology ubstrate: - white - w	Comments 16. 17. 19. 20. 21. 22. 23. 25. 26. 27. 26. 27. 28. 29. 20. 21. 20. 21. 22. 23. 24. 25. 26. 27. 26. 27. 28.	Chromochronology	Comments
Chromochronology Labett Labe	Comments 16. 17. 19. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology (Comments
Chromochronology Substrate: Lehitt	Comments 16. 17. 19. 20. 21. 22. 23. 24. 25. 26. 27. 29. 29.	Chromochronology	Comments
Chromochronology Labett Labe	Comments 16. 17. 19. 20. 21. 22. 23. 24. 25. 26. 27. 29. 29.	Chromochronology (Comments

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Structure Manager	mmendations 20 5 VVI
rocation of Sample	
Date Removed	
IN-DEPTH MICROSCOPIC/CHEMIC	AL ANALYSIS
Purpose of Phase II Analysis	S
No. of Layers to be Studied	
Reason for Layer Selection:	
Visual Characteristics of L glassiness, ropiness, ect.)	ayer to be Matched: (relative thi nness, thickness :
MEDIUM ANALYSIS: (Separate	paint/finishlayer from stratigraphy, if necessary.)
Possible medium	Chemical Reaction
011	
Latex	
Whitewasn/calcimine	+
Waterbased/distemper	
Varnish	
Shellac	
/Va, 5	No resture can larger
Flourescence under near ulr	TRYIOLOGY WORK COLOR
Probable pigment associated	with flourescence:
Possible Pigment Type	Spot Test Reaction HC1+Potacción Fine color
	
Probable pigment(s):	o ditticutt to blutingmuh läyers between withing or Zinc ox.
Probable megium:	min
	or standards; place under UV light for bleaching
	Sherwin-Williams
RECOMMENDATIONS	
Color:	
Paint Type:	
DOCUMENTATION	
Sample/slide NO: Report prepared - Date:	
report prepared - Date:	By Whom:

The Analysis (dateco	Removed By nstructure's His nstructed, significant	tory which May Pertai	
	tien		
A: Microscopic Analys	15		
ES -Finish (F)	Reaction of	Sodium Sulfide	
Primer (P) Glaze (G)	wederion of	Hydrocaloric Acid	()
		Dimethylformamide	
Varnish (V)		Methylene Chloride	- 0
Shellac (S)		Water	()
Wall paper (W)		Alcohol	(1
Fracture ()		Turentine	(
Dirt Layer (-)		Near UV Light	(1
			()
layers of decorative	e painting, if any: (gr	alling marbleizing	
e layers of decorativ	e painting, if any: (gr	aining, marbleizing,	polyc
Chromochronology	Comments		
Chromochronology	Comments	Chromochronology Con	men t
Chromochronology strate: Wood	Comments Dat Wass 16.	Chromochronology Con	mmen t
Chromochronology strate: Wood	Comments Don't Was 16. Don't was 17.	Chromochronology Con	wen t
Chromochronology Strate: Wood Cleam Cream	Comments Daf Was 16. Daf was 17. Daf 46.	Chromochronology Con	mmen t
Chromochronology strate: wood Citam	Comments Done Was 16. Dane was 17. Dane Was 19.	Chromochronology Con	wwen t
Chromochronology strate: wood Citam	Comments	Chromochronology Con	men t
Chromochronology strate: wood Cica m Cica m Circa m Circa m Circa m White	Comments Dat Was 16. Dat was 17. Dan Was 19. Dan Yu 20.	Chromochronology Con	mmen t
Chromochronology strate: wood Citam	Comments Done Was 16. Done was 17. Done Was 19. Done Vu 20. Time 21.	Chromochronology Con	mmen t
Cream	Comments Comments 16.	Chromochronology Con	men t
Chromochronology strate: wood Cicam lary Cicam This Cicam Listam Listam Cicam Listam	Comments Dat Was 16. Dat was 17. Dat Mas 19. Dat Mas 19. Dat Mas 21. Dat Mas 21. Dat 22. Dat 22. Dat 22.	Chromochronology Con	ment
Chromochronology strate: Wood Citam Citam This Citam This Citam Citam Citam Citam Citam Citam Citam Citam Citam	Comments Date Was 16. Date was 17. Date was 19. Date was 19. Date was 20. Cons 21. Date 23. Date 23. 22. Date 23. 23.	Chromochronology Con	ment
Chromochronology strate: Wood Gream Cream This Cream White	Comments ton Was 16. Date was 17. Date was 19. Date yu 20. Tons 21. Date 22. Date 23. 24. 25.	Chromochronology Con	ment
Chromochronology strate: wood Cicam living	Comments Dat Was 16. Dat Was 17. Dat Was 19. Dat Was 19. Dat 20. Dat 21. 22. Dat 22. Dat 23. Dat 23. Dat 24. 25.	Chromochronology Con	men t
Chromochronology strate: Wood Cicam Try Cicam Thin Cicam White Cicam	Comments Dat 465 17. Dat 465 17. Dat 465 19. Dat 20. Dat 21. Dat 22. Dat 23. 24. 25. 26. 27. 23.	Chromochronology Con	men I
Chromochronology strate: Wood Cicam Try Cicam Thin Cicam White Cicam	Comments Dat Was 16. Dat Was 17. Dat Was 19. Dat Was 19. Dat Yu 20. Tan 21. 22. Dat 23. 24. 25. 26. 27. 28.	Chromochronology Con	ment
Chromochronology strate: wood Cicam living	Comments Dat Was 16. Dat Was 17. Dat Was 19. Dat Was 19. Dat Yu 20. Tan 21. 22. Dat 23. 24. 25. 26. 27. 28.	Chromochronology Con	ment

Phase II: Analysis and Recomm	encations 21-m-	P
Structure America		
rocation of Sample		
Date Removed April 198	¥ Rem	ovea By nvO
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
No. of Layers to be Studied		
Reason for Laver Selection:		
Visual Characteristics of Lay glassiness, ropiness, ect.):		relative thinness, thickness
MEDIUM ANALYSIS: (Separate pa	ant/finishlayer fro	om stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil		
Latex		
Whitewasn/calcimine		
waterbased/distemoer		
Varnish		
Shellac		
PICMENT ANALYSIS: (Separate necessar: Flourescence under near ultr: Probable pigment associated of	y.)	./ Calan
Possible Pigment Type	S T	_
1 - I sment Type		Reaction
_bead	No a S	Trined Black
		
PIGMENT AND MEDIUM TYPE:		· · · · · · · · · · · · · · · · · · ·
Probable manage(a)	1	
Probable pigment(s): /cc Probable megium: Oil		
	r standards; place	under UV light for bleaching
Butens paint color	Sherwin-	Williams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	<u> </u>

TA: Microscopic Analysis			=
DES -Finish (F)	Reaction of	Sodium Sulfide	(Na ₂ S
Primer (P)		Hydrochloric Acid	HCI
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	CHa
Shellac (S)		Water	(H ₂ 0
Wall paper (W)		Alcohol	(OĦ)
Fracture ()		Turentine	(TUR
Dirt Layer (-)		Near UV Light	(UV)
/ (/			
			
te layers of decorative painting.	g, if any: (gr	aining, marbleizing,	polychr
Chromochronology Comment	•	Chromochronology Co	mments
ibstrate: Pluk-		omoe onorog)	
6 sella intre	16	•	
Lello mas Nas S			
- 3ch- 6lut Cont Ca	4 19	·	
	WELLE & TO	•	
· —————		·	
. two. dus		·	
·			
· <u>Lellow</u>	22	•=====	
· Jain Nais	23	•	
· usling cream Nos 5	24	•	
0. vella ream Yaz S	23		
	26	·=====	
1. 2000			
1. 2000			
1. <u>arren</u> 2. (t. arren	41		
1	28	i:	
1. <u>arren</u> 2. (t. arren	28		

	ndations 5	14 m
Structure		
Location of Sample Date Removed	2	
Date Removed	кешоу	ed By
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
No. of Layers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of Lave	er to be Matched: (re	elative thinness, thickness
glassiness, ropiness, ect.):_		
MEDIUM ANALYSIS: (Separate par	int/finishlayer from	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
011	DMF.	softenes
Latex		
Whitewash/calcimine		
Waterbased/distemper Varnish		
Shellac		
Flourescence under near ultra Probable pigment associated w	violet: yes no nth flourescence:	_, Color
Possible Pigment Type	Spot Test	Reaction
,2 lead white	kŤ	wellow color
,2 <u>leadurbite</u>	Rieseyma This Eggno	wellow rolor
,2 lead white	kŤ	yellow color
,2 lead white	Paterine This cycric	
,2 lead white	Paterine This cycric	
PIGMENT AND MEDIUM TYPE:	Extraction This cyanical and Mine of the contraction of the contractio	
PIGMENT AND MEDIUM TYPE: Probable pigment(s): * 7 Probable meaium: * 73 COLOR: (Match sample to color	Estation This space of the lead in lines and name a standards; place or standards; place or	Raw on t
PIGMENT AND MEDIUM TYPE: Probable pigment(s): * 7 Probable meaium: * 73 COLOR: (Match sample to color	Estation This space of the lead in lines and name a standards; place or standards; place or	Raw on t
PIGMENT AND MEDIUM TYPE: Probable pigment(s): * 7 Probable meaium: 73 COLOR: (Match sample to color purposes if approprat	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Co.) Water Over the or bleaching the control of th
PIGMENT AND MEDIUM TYPE: Probable pigment(s): 47 Probable meaium: COLOR: (Match sample to color	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Wanter Own of the UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): 47 Probable meaium: COLOR: (Match sample to color purposes if approprated to the purposes of t	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Co.) Water Over the or bleaching the control of th
PIGMENT AND MEDIUM TYPE: Probable pigment(s): + 2 Probable meaium: T > 1 Probable meaium:	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Co.) Water Over the or bleaching the control of th
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Co.) Water Over the state of t
PIGMENT AND MEDIUM TYPE: Probable pigment(s): * 2 10 Probable meaium: To be color purposes if appropriat # 1 2 10 ECOLOR: (Match sample to color purposes if appropriat # 1 2 10 ECOMMENDATIONS Color: Paint Type: DOCUMENTATION	Externa Thucycrus End whire Inspect of Let lead in Inner Let lead in Inner Standards: place un Let land (w) Let only Shervan-W	Colling Colling
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	Extraction This System End whire Inspection and Name and Name standards; place un end (w) meet simil Shervan-W need in the Name ne	Colling Colling

Phase I: Sequence of Layers Structure Monastern Location of Sample Tancor Date Removed Dignificant Facts Regarding	23-m-8 NEWall Music	r occ	m jusi below cerling	center
To The Analysis (dateconstr	ucted, signific	ant a	alterations, dates par	
This wall may	new been moved	÷		
DATA: Microscopic Analysis				
CODES -Finish (F) Primer (P) Glaze (G) Varnish (V)	Reactio	n of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride	(Na ₂ S) (HCI) (DMF) (CH ₂ CL ₂
Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)			Water Alcohol Turentine Near UV Light	(H ₂ O) (OH) (OH) (TURP) (UV)
Note layers of decorative pa	ainting if any.	(07	aining marhleizing	nol vehromy
ect.)				
Chromochronology Co Substrate: Place	Dw.E		Chromochronology Co	
1. 6-		16.		
2. (gellow whose	DMF	1/.		
3. Welley white NA.S	DMF	10.		
4. 37.1	2 2 2	19.		
5. transparent	DMF fluoresses	40.		
6. I This Parent	DME	- 41.		
3. Jellow Work No. 5		44.		
8. July who &		43.		
9. yellow white Nozs	-	24,		
10		20,	•	
11. willow white		20,		
12.	+	61.	1	
13. It. coren	 	40.		
14.	 	29.	·	
15	1	30.	·	
Summary:				

cation of Sample Theory A cation of Sample Theory A te Removed gnificant Facts Regarding I The Analysis (dateconstru	ine Structure's	ilst	ory which hav rertal	n ine
I wan llaw int				
Tt. Missesses tealman	· · · · · · · · · · · · · · · · · · ·			
ATA: Microscopic Analysis				
DDES -Finish (F) Primer (P) Glaze (G) Varnish (V)	Reaction	of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride	
Shellac (S)			Water	(H ₂ 0)
Wall paper (W)			Alcohol	(OH) (TURP
Fracture () Dirt Laver (-)			Turentine Neat UV Light	(UV)
biit Laver (-/			Hear of Light	(01)
	ainting, if any:	(gr	aining, marbleizing,	polychro
	einting, if any:	(gr	sining, marbleizing,	polychro
Chromochronology Co	omments	(gr	Chromochronology C	
Chromochronology Co	Doments	16.	Chromochronology C	comments
Chromochronology Countries Place	DMF	16.	Chromochronology C	omments
Chromochronology Countries: Plants	Doments	16. 17. 18.	Chromochronology C	omments
Chromochronology Countries: Planter	DIME DIME	16. 17. 18.	Chromochronology C	omments
Chromochronology Constitution of the constitut	Draf Fluoress	16. 17. 18. 19. 20.	Chromochronology C	comments
Chromochronology Construction (August 1977) Chromochronology Cons	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21	Chromochronology C	omments
Chromochronology Constitution of the constitut	Draf Fluoress	16. 17. 18. 19. 20. 21. 22.	Chromochronology C	comments
Chromochronology Countries: Plante Continuous Nass Transparent Tran	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology C	comments
Chromochronology Countries: Plants (Aller when Mass - transcardat - transcarda	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology C	comments
Chromochronology Coubstrate: Player Latter when Mans Transchot	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology C	omments
Chromochronology Constitution of the constitut	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology C	comments
Chromochronology Countries: Planter Chromochron	DIME DIME DIME DIME DIME DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology C	Comments
Chromochronology Co. Substrate: Plate Substrat	Draf Averty	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology C	Comments
Chromochronology Co. Substrate: Plate Ly lie what Substrate: Plate Ly lie what Substrate Substrate: Plate Ly lie what Substrate Substra	Draf Averty	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology C	Comments
Chromochronology Co. Substrate: Plate Substrat	Draf Averty	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology C	Comments
Chromochronology Consultation (Consultation of Consultation of	Draf Averty	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.	Chromochronology C	comments

See 23-m-P

Structure	iendations	
Location of Sample		
Date Removed	Remove	a By
IN-DEPTH MICROSCOPIC/CHEMICAL	L ANALYSIS	
Purpose of Phase II Apalmers		
Purpose of Phase II Analysis		
No. of Layers to be Studied_		
Reason for Layer Selection:		
Visual Characteristics of La	yer to be Matched: (rei	ative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate p	aint/finteblever from s	tratigraphy of necessary
, (separate)	and, emished, er from t	recessary.
Possible medium	Chemical	Reaction
Oil	DMF	
Latex		
Whitewasn/calcimine		
Waterbased/distemper		
Varnish Shellac		
Suetrac		
Flourescence under near ultr Probable pigment associated Possible Pigment Type	Snot Test	, Color
to lead white	KI	_ vellan
nd	KI	mellan 3:00
		
PIGMENT AND MEDIUM TYPE:		
1- 0	1. /1	
Probable pigment(s):	Mria. INDER OIL	
Probable medium:	ice insecusion	
COLOR: (Match sample to colpurposes if appropriate 5th 25 dv	ate.)	er UV light for bleaching
Butens paint color# 3 54		liams
	necks me orang	·
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: Report prepared - Date:		
weport prepared - pate:	By Whom:	

DATA: Microscopic Analysis CODES -Finish (F) Reaction of Sodium Sulfide (Na_S) Primer (P) Hydrochloric Acid (HCT) Glaze (G) Dimethylformanide (DYF) Varnish (V) Methylene Chloride (CH_CL_ Shellac (S) Water (H_O) Alcohol (GH) Fracture () Turentine (TURP) Dirt Layer (-) Neer UV Light (UV) Note layers of decorative painting, if any: (graining, marbleizing, polychromect.). Chromochronology Comments Substrate: 1. Right white (H_O) Inc Ox 16. 2. 17. 3. Cellow Water (H_O) Inc Ox 18. 4. 19. 5. Ceram DIME 2. 20. 6. 21. 7. Cellow Water (H_O) Inc Ox 12. 8. George (M_O) Inc Ox 12. 9. Right white (M_O) H(O) Inc Ox 12. 10. 25. 11. Lager (2. 12. 27. 13. 28. 14. 29. 15. Summary:	Location Date Remo Significa	of Sample ved Aoul nt Facts Renalists (di	DEK egarding Th	ted, signific	Hist ant s	mv ory which May Pertain alterations, dates pai	nted)
CODES -Finish (F) Reaction of Sodium Sulfide (Na_S) Primer (P) Hydrochloric Acid (HCT) Glaze (G) Dimethylformamide (DMF) Varnish (V) Methylene Chloride (CH_CL_ Shellac (S) Water (H_O) Wall paper (W) Alcohol (OR) Fracture () Turentine (TURP) Dirt Layer (-) Neer UV Light (UV) Note layers of decorative painting, if any: (graining, marbleizing, polychrometr.). Chromochronology Comments Substrate:					_		
Primer (P) Glaze (G) Hydrochloric Acid (HCI) Glaze (G) Warnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) Note layers of decorative painting, if any: (graining, marbleizing, polychrometr.). Chromochronology Comments Substrate: Fracture: F	DATA: Mic	roscopic A	nalysis				
Chromochronology Comments Substrate: L. Rest to his to (H.Cl) Line Ox 16. 2.	CODES -F: Pi G: V: Si W: F D Note lay	inish (F) rimer (P) laze (G) arnish (V) hellac (S) all paper (racture (irt Layer (w)) -)			Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Neet UV Light	(HCI) (DMF) (CH_CL_ (H_O) (OR) (OR) (TURP) (UV)
16. 22. 23. 24. 24. 25. 26. 26. 27. 28. 28. 29. 20. 21. 21. 22. 23. 24. 25. 26. 26. 27. 26. 27. 28. 28. 28. 28. 29. 21. 22. 23. 24. 26. 27. 28. 28. 29. 21. 22. 23. 24. 25. 26. 27. 28. 28. 29. 29. 30.		Chromochro	nology Com	ments		Chromochronology Co	mments
19. 5. can DMF 9.1 20. 7. called treas No. 5. (16) 2.1 22. 8. cache where May 5. (16) 2.1 23. 9. Rest that (Was 1. H.C.) 2.2 10. 12. 12. 25. 11. 26. 12. 13. 28. 14. 29. 15.	Substrat	· · · · · · · · · · · · · · · · · · ·	(Ch. C)	17 - 0-	16		
19. 5. can DMF 9.1 20. 7. called treas No. 5. (16) 2.1 22. 8. cache where May 5. (16) 2.1 23. 9. Rest that (Was 1. H.C.) 2.2 10. 12. 12. 25. 11. 26. 12. 13. 28. 14. 29. 15.	2 13cg	17 74, 15	CRUCIS	LINE OX	17		
19. 5. can DMF 9.1 20. 7. called treas No. 5. (16) 2.1 22. 8. cache where May 5. (16) 2.1 23. 9. Rest that (Was 1. H.C.) 2.2 10. 12. 12. 25. 11. 26. 12. 13. 28. 14. 29. 15.	3. 40110	N. 144.00	(H. C)	7:40	18	·	-
DATE 20. 21. 21. 22. 23. 24. 24. 25. 26. 27.	4. 31		1-12-		19		
21. 2. Lellow tream No. 5 (10) 201 22. 3. Rect where No. 5 (10) 201 23. 9. Rect where No. 5 (10) 20. 10. 25. 11. 26. 12. 27. 13. 28. 14. 29. 15. 30.	S. Cre.	-	DME . S.	1	20		
10 10 10 10 10 10 10 10	y 6	-			21	•======================================	
9. Brite the Mark HC 22, 10. 25, 11. 26, 12. 27, 13. 28. 14. 29, 15. 30.	s 7. nella	w cream	Nc. 5 1 13	1 1211	22	•	
10. 25. 11. 26. 12. 27. 13. 28. 14. 29. 30.	۶۶. <u>۲۶</u> ۲	iche whire	IMag S H	1 10.1	23	•	
12. 27. 13. 28. 14. 29. 30.	′ <u>۹: </u>	it where	1N-251H	سيميك	24	•	
12. 27. 28. 14. 29. 30.	10	<u> </u>	1		25	•	
14. 29. 15. 30.	111.	bo N			20	•	
14. 29. 15. 30.	12:		+		21	•	
15	13		 		20	·	
	15.		+		30	·	
Summary:					٥	·•	
	Summary	r:					_

Structure	~ 1 '	
Location of Sample Acar	milde = music room	
Structure Location of Sample 1000000000000000000000000000000000000	Removed	87
IN-DEPTH MICROSCOPIC/CHEMICAL		
Purpose of Phase II Analysis		52855
		-3
No. of Layers to be Studied_		
Reason for Layer Selection:	ver to be Matched: (relet	ive thinness, thickness
glassiness, ropiness, ect.):		1,1 (1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
MEDIUM ANALYSIS: (Separate p	Baint/finishlayer from str	atigraphy, if necessary.)
Possible medium	Chemical	Reaction
0il	DMF	+ layer # (-)
Latex	CH2CI2	7.0
Whitewasn/calcimine	(1 CI - 7 Jan Hace.	143
Waterbased/distemper	MCL 3 AND HEACT.	
Varnish		
Shellac		
		
Flourescence under near ult Probable pigment associated	raviolet: yes no no vith flourescence:	COLOI Wellow Freez
Possible Pigment Type		Reaction
- or Zinc ox	Alexander ferromania	+ Blu color
PIGMENT AND MEDIUM TYPE:		×/ = //nc ox
Probable pigment(s): /exp	CWARE / SHEX	-/nc 03
COLOR: (Match sample to copurposes if appropriate computation of the c		r UV light for bleaching
Butens paint color	Sherwin-Will:	iams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date: Ti	17. By Whom:	mo

Phase II: Analysis and Recomm	endations 26-m-P	
ocation of Sample		
rhase II: Analysis and Recomm Structure Location of Sample Date Removed	Remove	a By
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis_		
No. of Layers to be Studied Reason for Layer Selection:		
Keason for Laver Selection:		
Visual Characteristics of Lav glassiness, ropiness, ect.):	er to be matched: (res	ative thinness, thickness
MEDIUM ANALYSIS: (Separate pa	int/finishlayer from s	stratigraphy, if necessary.)
Possible medium Oil	Chemical	Reaction
Latex		
Whitewasn/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
		
PICMENT ANALYSIS: (Separate		
Flourescence under near ultra Probable pigment associated	aviolet: ves no	, Color
Possible Pigment Type	Spot Test	Reaction
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):		
Probable medium:		
COLOR: (Match sample to colo purposes if appropra	r standards; place und te.)	er UV light for bleaching
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: Report prepared - Date:		
report prepared - Date:	By Whom:	

Significant Facts Regarding The Structure's History which tandertain The To the a healysis (deteconstructed significant alterations likes painted)

DaTa: Hieroscopic Analysis

CURS - Finish (F. Section of Sodium Sulfish: (Ma.)

Frienr (Pin Bydrochloric Lide (Ma.)

Frienr (Pin Bydrochloric Lide (Ma.)

Frienr (V) Hethylorocalde (Ma.)

Friedram (V) Hethylorocalde (Ma.)

Friedram (V) Veter (Ma.)

Friedram (Ma.)

Friedram (Ma.)

Food layers of decorative painting illusy: (graining metholising, polychromes)

Chromochromology Comments

Substrate: Comments

Sub



ine analysis (dat	econstructed, sign:	illicant a	ory Which May Fertain alterations, dates par	ntea)
				<u> </u>
ATA: Microscopic Ana	lysis			
DDES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W Fracture () Dirt Layer (-	3	ction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(NanS (HCI) (DMF) (CHnC (HnO) (OH) (TURP (UV)
	-			
ct.)		any: (gr	Chromochronology Co	
Chromochrono	logy Comments		Chromochronology Co	mments
Chromochrono	logy Comments	16.	Chromochronology Co	mments
Chromochrono	logy Comments	16. 17.	Chromochronology Co	mments
Chromochrono ubstrate: 14 ne	logy Comments	16. 17. 13.	Chromochronology Co	mments
Chromochrono ubstrate: 1/2 ove	logy Comments	16. 17. 13. 19.	Chromochronology Co	mments
Chromochrono ubstrate: 1/00	logy Comments	- 16. - 17. - 13. - 19. - 20.	Chromochronology Co	mments
Chromochrono ubstrate: 1/200	logy Comments	16. 17. 18. 19. 20.	Chromochronology Co	mments
Chromochrono ubstrate: 14 ove	logy Comments	16. 17. 18. 19. 20.	Chromochronology Co	mments
Chromochrono ubstrate: 1/00	logy Comments	16. - 17. - 13. - 19. - 20. - 21. - 22. - 23. - 24.	Chromochronology Co	mments
Chromochrono ubstrate: 1/00	logy Comments HC\ HC\ HC\	16. 17. 19. 20. 21. 22. 23. 24.	Chromochronology Co	mments
Chromochrono ubstrate: 1/00 - Whit	HC\ HC\ HL\	16. 17. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Co	mments
Chromochrono ubstrate: // no - whit	logy Comments HC\ HC\ HL\	16.2 - 17.7 - 18.9 - 20. - 21. - 22. - 23. - 24. - 25. - 26. - 27.	Chromochronology Co	mments
Chromochrono ubstrate: 1/200	HCI HCI HLI	- 16. - 17. - 19. - 19. - 21. - 22. - 23. - 24. - 25. - 26. - 27. - 28.	Chromochronology Co	mments
Chromochrono ubstrate: 1/200 - Why	HCI HCI HLI	- 16. - 17. - 19. - 20. - 21. - 22. - 23. - 24. - 26. - 27. - 28.	Chromochronology Co	mments
Chromochrono ubstrate: 1/200	HCI HCI HLI	- 16. - 17. - 19. - 20. - 21. - 22. - 23. - 24. - 26. - 27. - 28.	Chromochronology Co	mments

Structure Menani'd	lendations (1.1. in	
ocation or Sample		
Date Removed	Remove	а Ву
IN-DEPTH MICROSCOPIC/CHEMICAL	. ANALYSIS	
Purpose of Phase II Analysis_	fact 112 10	
rurpose of flase if Allarysis_	- 158 17 12 12 Mes	
No. of Lavers to be Studied	1+2	
Reason for Laver Selection:		
Visual Characteristics of Lay		ative thinness, thickness
glassiness, ropiness, ect.):		
CONTINUE AND VOICE AND		
MEDIUM ANALYSIS: (Separate pa	iint/fimishlayer from s	tratigraphy, if necessary.)
Possible medium	Chemical	Reaction
011	DMF	- MedCt1011
Latex		
Whitewash/calcimine	HCI	
Waterbased/distemper	145.0	
Varnish		
Shellac		
Flourescence under near ultr Probable pigment associated Possible Pigment Type	Spot Test	Reaction Passing Commerces
		NOALE - LAILING IN.
		
PICMENT AND MEDIUM TYPE:		
Probable pigment(s): www.	uting	, th. 0
COLOR: (March apple to all		- IN 1:->- C>1>
COLOR: (Match sample to colo purposes if appropra	ite.)	
Butens paint color	Sherwin-Wil	liams VA
RECOMMENDATIONS		<u> </u>
Color: mo wash:	Saturated line	putty thinnex witho
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	

Phase I: Sequence of Lavers 9-m- Structure Manager location of Sample Factor NW val Date Removed M. OKE Significant Facts Regarding The Structed, s	Removed By	ory Which May Pertain The	
to find how many less			
			-
DATA: Microscopic Analysis			
CODES -Finish (F) Primer (F) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture (' Dirt Laver (-) Note lavers of decorative painting, ect.)		Dimethylformamide (DMethylene Chloride (CMethylene Chloride (CMethylene Chloride (CMethylene (CMethyle	ICI) MF) HACL LÓ) TURP) TURP)
Chromochronology Comments Substrate: Marker HCL Na., 1. Hrowwith HCL 2. (4LL) 3. (4LL) 4. (4LL)	16. 17.	Chromochronology Comment	
5. b	19.		
6	21.		
7.	22.		
9.	24.		
10		·	
11.		·	
13.			
14.		·	
15	30	•	
Summary: White wash			

 \bigcirc

Phase II: Analysis and Recomm Structure	,	
ocation of Sample		
coation of Sample	Removed	Bv
IN-DEPTH MICROSCOPIC/CHEMICA		
Purpose of Phase II Analysis		
No. of Layers to be Studied	·	
Reason for Layer Selection:		· · · · · · · · · · · · · · · · · · ·
Visual Characteristics of La		
glassiness, ropiness, ect.):		· · · · · · · · · · · · · · · · · · ·
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from str	ratigraphy, if necessary.)
Possible medium Oil	Chemical	Reaction
Latex		
Whitewash/calcimine		
Waterbased/distemper Varnish		
Shellac		
5		
Flourescence under near ultr Probable pigment associated	raviolet: yes no , vith flourescence:	Color
Possible Pigment Type	Spot Test	Reaction
		
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Probable medium:		
COLOR: (Match sample to col purposes if appropr		UV light for bleaching
Butens paint color	Sherwin-Willi	ams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCTOR TON		
DOCUMENTATION Sample/slide NO:	·····	
Report prepared - Date:	By Whom:	

Ciona fa aca					Above Winkon	
o The An	alysı	s (dateco	ing the Str Instructed.	ucture's His	torv which May Pertai alterations, dates pa	n The
				- Significant	arterations, dates pa	inted)
ATA: Micro	oscop	ıc Analys	ils			
ODES -Fin:	ısh	(F)		Pagation of	C-4 C 1511	
				WEATCHOU OF	Sodium Sulfide Hydrochloric Acid	(Na S
Glas	mer ze	(G)			Dimethylformamide	(HCI)
	nısh				Methylene Chloride	(DMF)
	llac				Water	(H ₀ 0)
		er (W)			Alcohol	(n,0)
	cture				Turentine	(TURF
Dirt	t Layı	er (-)			Near UV Light	(10%)
					o . Dagne	- 1
_						
ote layers	s of	lecorativ	e painting,	if any: (gr	aınıng, marbleizıng,	polvchro
						
Chi	romoc	ronology	Comments		aining, marbleizing, Chromochronology Coi	
Chi ubstrate:	romoci	ronology	Comments	1	Chromochronology Con	mments
Chi ubstrate:	romoci	ronology	Comments	16.	Chromochronology Con	mments
Chi ubstrate:	romoci	nronology taz	Comments	16. 17.	Chromochronology Con	mments
Chi ubstrate:	romoci hy t	nronology to	Comments	16. 17. 19.	Chromochronology Con	mments
Chi ubstrate:	romoci hy t	nronology to	Comments	16. 17. 19.	Chromochronology Con	mments
Chi ubstrate:	romoci two	nronology	Comments	16. 17. 18. 19.	Chromochronology Con	moments
Chi ubstrate:	romoci two	nronology	Comments	16. 17. 18. 19. 20. 21.	Chromochronology Con	mments
Chi	TOMOCI INS IN TE	nronology ta/	Comments	16. 17. 18. 19. 20. 21. 22.	Chromochronology Con	mments
Chi ubstrate:	romoci ty ty ty ty ty ty ty ty ty ty ty ty ty	nronology	Comments	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Con	mments
Chiral base of the control of the co	romoci ty	nronology	Comments	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Con	moments
Christian Christ	romocl	nronology ta,	Comments	16. 17. 18. 19. 20. 21. 22. 23. 23. 25. 25.	Chromochronology Con	mments
Chr ubstrate:	romoci to the state of the stat	nronology ta,	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Con	mments
Christian Christ	romoci the te te te te te te te te te t	nronology tax	Comments	16. 17. 19. 19. 20. 20. 22. 23. 24. 24. 25. 26. 27. 29. 29. 29. 29. 29. 29. 29. 29. 29. 29	Chromochronology Con	mments
Chiubstrate:	romoci the te te te te te te te te te t	nronology ta.	Comments	16. 17. 19. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology Con	mments
Chiubstrate:	romoci the te te te te te te te te te t	nronology ta.	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 29. 29. 29. 29. 29. 29. 29. 29. 29	Chromochronology Con	mments
Christian Christ	romoci the te te te te te te te te te t	nronology ta.	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 29. 29. 29. 29. 29. 29. 29. 29. 29	Chromochronology Con	mments

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Structure		
Location of Sample Date Removed		2
Date Removed		еа ву
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
Purpose of Phase II Analysis	;_ 	
No. of Lavers to be Studied	·	
Reason for Laver Selection:		
Visual Characteristics of La	ayer to be Matched: (re	lative thinness, thickness
glassiness, ropiness, ect.):	·	
MEDIUM ANALYSIS: (Separate 1	paint/ finis hlayer from	stratigraphy, if necessary.
Possible medium	Chemical	Reaction
Oil	Chemicai	Keaction
later		
Whitewasn/calcimine	401	.a.
Waterbased/distemper		
Varnish		
Shellac		
PICMENT ANALYSIS: (Separat necessar Flourescence under near ult Probable pigment associated	ry.)	, Color
Possible Pigment Type	Snot Test	
Aci	+	
PIGMENT AND MEDIUM TYPE: Probable pigment(s): who		
Probable medium:	to wash	
Probable medium: COLOR: (Match sample to color purposes if appropriate purposes in appropriate purpose purposes in appropriate purpose purpos	lor standards; place und	
COLOR: (Match sample to col	lor standards; place und	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate paint color	lor standards; place und	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate paint color RECOMMENDATIONS	lor standards; place und	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate paint color RECOMMENDATIONS Color:	lor standards; place und	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate app	lor standards; place un rate.) Sherwin-Wi	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate app	lor standards; place un rate.) Sherwin-Wi	der UV light for bleaching
COLOR: (Match sample to colpurposes if appropriate paint color RECOMMENDATIONS Color:	lor standards; place uncrate.) Sherwin-Wi	der UV light for bleaching

ation of Sample Place Aye e Removed Aon 1988 Inficant Facts Regarding The Str	ructure's His	tory whech May Pertain	The
The Analysis (dateconstructed,	signiticant	alterations, dates pai	.nted)
A: Microscopic Analysis			
ES -Finish (F)	P	Sodium Sulfide	(N= C
Primer (P)	Reaction of	Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	
Shellac (S)		Water	(H ₂ O)
Wall paper (W)		Alcohol	(OH)
Fracture ()		Turentine	(TURF
Dirt Laver (-)		Near UV Light	(UV)
, , ,			
te layers of decorative painting	, if any: (g	raining, marbleizing,	polychro
Chromochronology Comments		raining, marbleizing,	
Chromochronology Comments	16	Chromochronology Co	mments
Chromochronology Comments	16	Chromochronology Co	mments
Chromochronology Comments Strate: Norther Planter Cork tinge	16 Done 17	Chromocnronology Co	mments
Chromochronology Comments Planter Park time White Vans V Calars Vellow white Nans	16 Dane 17 Dane 18 Dani 19	Chromocnronology Co	mments
Chromochronology Comments Strate: North time Planty Cok time White Coas C (alaze Vellous white Nas S Orange Nas S	16 Dane 17 Dane 18 Dane 19	Chromocnronology Co	nments
Chromochronology Comments Strate: Norther Planter (Ink time) White (One S) (alaze Vellous white Nan S Orange Nag	16 17 17 18 18 18 18 18 18 19 19 19 19 19 19 19 19 19 19	Chromocnronology Co	nments
Chromochronology Comments Planter Planter Conk time. White Van S V Colors Vellow white Nan S Orange Nan S	16 17 17 18 18 19 19 19 19 19 19 19 19 19 19	Chromocnronology Co	mments
Chromochronology Comments Strate: No. tax Planty Conk tinge White Cans V Colars Vellow white Nans Oxange Nans Vellow Nans	16 Done 17 Done 18 Done 19 Done 20 Done 21 Done 22	Chromocnronology Co	mments
Chromochronology Comments Strate: Norther Planty (Norther) White Una S U Calaze Vellous white Una S Crange Num Yellow Van S De Van S	16 Dan 17 Dan 18 Dan 19 Dan 20 Dan 21 Dan 22 Dan 23 Dan 24	Chromocnronology Co	nments
Chromochronology Comments Planker Conk tings White Conk tings Vellous white Nans Orange Nath Yellow Nans The Nath Yellow Nans The Nath	16 17 17 18 19 19 19 19 19 19 19 19 19 19	Chromocnronology Co	mments
Chromochronology Comments Strate: Mortax Plantex Conk tinge White Con S U Colore Vellous white Na S Orange Na Hull Vellous Change Lind Vellous Change Cream Cream	16 Dant 17 Dant 18 Dant 19 Dant 21 Dant 22 Dant 24 Dant 25 Dant 25 Dant 25 Dant 25	Chromocnronology Co	mments
Chromochronology Comments Planter (Pink time) White Una S U Calazz Vellous white Nazz Cranse Nazz Hellow Nazz Hellow Nazz The Na	16 Dane 17 Dani 19 Dani 19 Dani 20 Dani 21 Dani 23 Dani 24 Vani 25 Dani 26	Chromocnronology Co	mments
Chromochronology Comments Strate: Mortax Planty Conk tinge Cologe Vellous white Nass Orange Nass Hollow Nass Plee Nass Cram Cologe Tellow Nass Cram Cologe Tellow Nass Cram Cologe Tellow Nass Cram Cologe Cram Cologe Cram Cologe Comments	16 17 18 19 19 19 19 19 19 19	Chromocnronology Co	mments
Chromochronology Comments Distrate: Mortax Plantx Mark time White Uas S Vellow white Uas S Orange Was Vellow Uas S Fire Uas S Orange Was Vellow Uas S Fire Uas S Orange Was Orange Was Vellow Uas S Fire Uas S Orange Was	16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Chromocnronology Co	mments
Chromochronology Comments Distrate: Mortax Plastr Mork tinge White Uas S Vellous white Nas S Orange Nas S Hade Vellous Way S Dive Vay S Cram Cram Cram Cram Cram Crem	16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Chromocnronology Co	mments

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Structure hones to 11	dations /8-m-h	`	
Location of Sample			
Structure nonastry Location of Sample Jane Date Removed - 17:1178	Remov	ea Bv_/	nra
IN-DEPTH MICROSCOPIC/CHEMICAL A	NALYSIS		0
Purpose of Phase II Analysis	- }		
No. of Layers to be Studied			
keason for Layer Selection:			
Visual Characteristics of Layer	to be Matched: (re	lative t	hinness, thickness
glassiness, ropiness, ect.):			
MCDTD			
MEDIUM ANALYSIS: (Separate pair	nt/finishlayer from	stratig	aphy, if necessarv.)
Possible medium	Chemical		Reaction ,
011	Imf		Softened
Later		-	- OB TIVICE
Whitewasn/calcimine		-	
Waterbased/distemper		-	
Varnish		-	
Shellac		-	
		-	
		-	
		-	
		-	
PIGMENT ANALYSIS: (Separate pa necessary.	unt/finish layer fr	om strat	ingraphy, if
,,,	•		
Flourescence under near ultrav	oloti man	0.1	
Probable pigment associated with	h floures	, Color	
Property Pagment apportance with			
Possible Pigment Type	Spot Test		Reaction
			keaction /
			turned Blacks
			
PIGMENT AND MEDIUM TYPE:			
Probable signant(s).	1.1.		
Probable pigment(s):	White		
. Totable medium:	el oit		
COLOR: (Match sample to color :	erandarder place und	177 1.	inhe for Nine i
purposes if approprate	standards; prace und	er uv I	ight for bleaching
purposes in appropriate	• /		
Butens paint color	Sherwan-Wil	liams	
RECOMMENDATIONS			
Color:			
Paint Type:			
			
DOCUMENTATION			
C 1 1 1 1 10			
Report prepared - Date:	By Whom:		

hase 1: Sequence of Laye tructure <u>Mong(t4/3</u>				
ocation of Sample Tark ate Removed Marie ignificant Facts Regard	en MM M.	of Above Pur.	ry toor Parlor	
ignificant Facts Regard	ing The Stri	Kemoved By	TAT Which May Porton	
o The Analysis (datecor	nstructed.	significant :	alterations, dates na	n ine
12 year per	d	-m-m -	/1. m = m	
ATA: Microscopic Analys	ıs			
CORPO Parial (F)		D		
CODES -Finish (F) Primer (P)		Keaction of	Sodium Sulfide	(VanS)
Glaze (G)			Hydrochloric Acid	HCI)
Varnish (V)			Dimethylformamide	DMF)
Shellac (S)			Methylene Chloride Water	CHACL
Wall paper (W)				
Fracture ()			Alcohol	· OH)
Dirt Laver (-)			Turentine	TURP)
Dirt Layer (-)			Near UV Light	(V, I)
Chromochronology			Chromochronology Co	mments
substrate: morter HI	1/22			
elaster +		16.		
· stare				
3. white t				
·				
		20.		
·		44.		
·				
3				
9.		55.		
10		;;.		
11.				
12.				
13.				
14				
				-
Summary:				
				

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Phase II: Analysis and Recomm Structure	_	\
Location of Sample		
Date Removed	Remove	ed By
IN-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
Purpose of Phase II Analysis		
No. of Lavers to be Studied		
Reason for Laver Selection:		
Visual Characteristics of La	ver to be Matched: (re:	lative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate p	paint/finishlayer from :	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
0il Latex		
Whitewash/calcimine	HLI	bybbles
Waterbased/distemper	— HCI	
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ult:	ry.)	Color
Probable pigment associated	with flourescence:	
Possible Pigment Type	Spot Test	Reaction
		
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s):Probable medium:	wash - this plaste	x lager
COLOR: (Match sample to col purposes if appropr	or standards; place und	
Butens paint color	Sherwin-Wil	lliams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Completelade MOs		
Report prepared - Date:	By Whom:	

Appendix #14 Monastery Mortar Data Sheets

	ex. 21 (continued)
	MORTAR ANALYSIS: DATA SHEET
	Name Forgette Sample No
	Date Origin of sample Moracre
	1071 20 min
	Visual description of sample (color, texture, hardness, inclusions, etc.):
	water in someth change in all the second
	ما به الراجع المراجع ا المراجع المراجع
لمي	Mortar Analysis:
Prod.	Original weight of powdered sample $(W_1) = \frac{25.19}{}$
	Weight of filter paper $(W_2) = 6.29 + .54 = 33$
	Weight of filter paper + dry fines $(W_3) = 10.40$
	Weight of dry fines $(W_3 - W_2) = 4.1$
	Weight of dry sand $(W_4) = 13.52$
	t of sand $((W_4/W_1) \times 100) = \frac{53.3}{}$
	* of fines $((W_3 - W_2)/W_1 \times 100) = \frac{5.77}{100}$
٠, ٢	• of dissolved binder -
	Observations: dissolution of binder, color of liquid:
	Characterization of Sand:
	Microscopic Examination Finer than 4.75 mm
	2.36 mm — 1.18 mm 3 1.14 °)
	600 um 152 -
	150 um 3 /
	75 411

MORTAR ANALYSIS	: DATA SHEET	Sum
Name	Sample No.	n-177 - 1- m-m
/	Origin of sampl	<u> </u>
Visual description of sample inclusions. etc.):		ture. hardness.
Mortar Analysis :		Service Service
Original weight of powdered samp	_	
Weight of filter paper (W_2) =	6.	30 + 53 6.83
Weight of filter paper + dry fin	es (₩3) =	7.8 3
Weight of dry fines $(W_3 - W_2) =$		1.02
Weight of dry sand (W_4) =		10,44
% of sand $((W_4/W_1) \times 100) =$		-1. 5 1 2
% of fines $((W_3 - W_2)/W_1 \times 100)$	=	<u> </u>
% of dissolved binder =		5-1, 35
Observations: dissolution of bir	ider, color of 1	iquid:
		2.72
Characterization of Sand:		-
Microscopic Examination		2.36 mm
	6	300 um = 7 3 26 5.75
	Ī	150 um 34 3.06
		53 um
		38 um
, ,	\\ ` 7	Carrier and the second

MORTAR ANAL	YSIS: DATA SHEET	Deep men	
Name	Sample No3	- m- m	-
Date	Origin of sam (kkror St. wa Detp many	plemonatem	<u>Σ</u> /οω
Visual description of saminclusions, etc.):	ple (color, to	exture, hardne	من م
	Tion chank	Limitree or lime	_
		Limbor tack inco	_
Mortar Analysis:			
Original weight of powdered s	ample (W ₁) =		
Weight of filter paper (W_2) =		6.22 + 573	6.79
Weight of filter paper + dry	fines (W ₃) =	10.72	
Weight of dry fines $(W_3 - W_2)$		<u>3.13</u>	
Weight of dry sand (W_4) =		9.=7:	
* of sand $((W_4/W_1) \times 100) =$		37.300	J
% of fines $((W_3 - W_2)/W_1 \times 1)$.00) =	15.64 1	
% of dissolved binder =		<u> 5307-s</u>	?
Observations: dissolution of	binder, color of	liquid:	
			
	,		
			رسه د. ۱۱ ه
Characterization of Sand:			
Microscopic Examination	% Finer than	4.75 mm	
	_	1.18 mm	
	-	600 um 1 3 4	
	_	150 um	-
	_	75 um <u> </u>	:
	_	53	-
	_		- 1

20,4m

ex. 21 (continued)

Name Sample No.	7-m-m - m-m
DateOrigin of s	sample the manager
المرابعة ال	texture, hardness,
The state of the s	
	7
	K
Mortar Analysis :	
Original weight of powdered sample (W_1) =	25.04
Weight of filter paper (W ₂) =	6.3 <u>0 + 63 6.8</u> 3
Weight of filter paper + dry fines (W ₃) =	7.88
Weight of dry fines (W ₃ - W ₂) =	1.05
Weight of dry sand (W ₄) =	9,28
% of sand $((W_4/W_1) \times 100) =$	37.23-
% of fines $((W_3 - W_2)/W_1 \times 100) =$	4.12-75
% of dissolved binder =	<u> </u>
Observations: dissolution of binder, color	of liquid:
·	
Characterization of Sand:	- 35
Microscopic Examination % Finer t	han 4.75 mm
	2.36 mm
	600 um <u>234</u> .35
	300 um
	75 um
	53 um

MORTAR	ANALY	SIS:	DATA	SHEET

0:1

Date //Y	Silerer Je Sull	mple monaster
Visual description of sam	Lack man in	exture, hardness,
Mortar Analysis :		
Original weight of powdered sa	$ample (W_1) =$	<u> 25. 17 </u>
Weight of filter paper (W_2) =		628+ 17=685
Weight of filter paper + dry	fines (W ₃) =	1127:
Weight of dry fines $(W_3 - W_2)$	=	4.44
Weight of dry sand $(W_4) =$		11.77
* of sand $((W_4/W_1) \times 100) =$		46.72 70
% of fines $((W_3 - W_2)/W_1 \times 1)$	00) =	17/200
% of dissolved binder =		2555)
Observations: dissolution of	binder, color of	liquid:
		equina i pact
Characterization of Sand:		, 76
Microscopic Examination	% Finer than	4.75 mm
		2.36 mm
	• • •	150 um

Name	Sample No. 6-m-m
	Origin of sample monasky Vitage Nie wall Collect main Building forthy thou 6-m-m-3 ile (color, texture, hardness,
inclusions, etc.): while w	aggraph very noticeask
Iron	Free growt
	
Mortar Analysis:	
Original weight of powdered sa	mple $(W_1) = \frac{250}{}$
Weight of filter paper (W_2) =	5,84+ ,57=6,72
Weight of filter paper + dry f	ines $(W_3) = \frac{3.17_{43}}{}$
Weight of dry fines $(W_3 - W_2)$	1,75:
Weight of dry sand (W_4) =	11.19_,
% of sand ((W4/W1) x 100) =	<u>44.74 5</u>
% of fines ((W ₃ - W ₂)/W ₁ x 10	10) = /3, 53777
% of dissolved binder =	48.22
Observations: dissolution of !	oinder, color of liquid:
	time given I fuel
Characterization of Sand:	1, 19
Microscopic Examination	% Finer than 4.75 mm
	2.36 mm
	ور م ع م م م م م م م م م م م م م م م م م
	150 um 132 (7.31) 75 um 27 (2.31)
***************************************	53 um <u>131</u> 63555
	11:07

MORTAR ANALYSIS: DATA SHEET

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MORTAR ANALYSIS: DATA SHEET

	NameS	ambre No			
		rigin of			ر ۱۳۸۸ <u>- د د ۱۳۸۰ د د د د د د د د د د د د د د د د د د د</u>
	Visual description of sample inclusions, etc.): Vcc.	Color.	心と te:	τίνο kture,	hardness,
		عند			
	7,00 56			-	
_					
	Mortar Analysis :				
	Original weight of powdered sample	e (W ₁) =		25	
	Weight of filter paper (W_2) =				<u>-5 6</u> 83
	Weight of filter paper + dry fines	s (W ₃) =			.33
	Weight of dry fines $(W_3 - W_2) =$.50
	Weight of dry sand $(W_4) =$,45
	t of sand $((W_4/W_1) \times 100) =$				<u> </u>
	% of fines $((W_3 - W_2)/W_1 \times 100)$	=			3 22.2
	<pre>\$ of dissolved binder =</pre>				<u>20.45</u> 70
	Observations: dissolution of bind	er, colo	r of	liquid	·
					3.73
	Characterization of Sand:				
		% Finer	than	4.75 mi 2.36 mi	m = 3,2
		t Finer	than	2.36 mm	m = 3/2
		t Finer	than	2.36 m 1.18 m 600 u	m
		% Finer	than	2.36 mm 1.18 mm 600 u 300 u 150 u	m
		t Finer	than	2.36 mm 1.18 mm 600 um 300 um 150 um 75 um	m
		₹ Finer	than	2.36 mm 1.18 mm 600 u 300 u 150 u 75 u 53 u	m



MORTAR ANALYSIS: DATA SHEET	<u>1</u>
NameSample No	7-m-m
	mple Moonte
R.	int Swill man
Visual description of sample (color, inclusions, etc.): 100 pure gray (clor - UC	texture, hardness,
Euro Braymal)	0
0	
Mortar Analysis :	
Original weight of powdered sample (W ₁) *	25.06_
Weight of filter paper (W_2) =	5 58 + . 51= 6.39
Weight of filter paper + dry fines (W_3) =	772 4.
Weight of dry fines $(W_3 - W_2) =$	1.33
Weight of dry sand (W_4) =	13.38g
$*$ of sand $((W_4/W_1) \times 100) =$	77343
% of fines $((W_3 - W_2)/W_1 \times 100) =$	<u> </u>
% of dissolved binder =	2.36
Observations: dissolution of binder, color o	
	(*)
·	
Characterization of Sand:	19.3 7
Microscopic Examination % Finer tha	n 4.75 mm
	1.18 mm 1.55 3 3 5 5 5 600 um 2.55 5 15 15 15
	300 um
	150 um $\frac{337}{75}$ um $\frac{37}{7}$
	53 um
	38 um

1.1

MORTAR ANALYSIS: DATA SHEET

Sample No. 8-m-m

Chunke of Lime, I non the		· <u> </u>
Mortar Analysis :		
Original weight of powdered sa	ample (W ₁) =	25.01
Weight of filter paper (W_2) =		6.34+ ,56 9
Weight of filter paper + dry	fines (W ₃) =	13.88
Weight of dry fines $(W_3 - W_2)$	=	6.98
Weight of dry sand (W ₄) =		7.43
* of sand $((W_4/W_1) \times 100) =$		29.70%
% of fines (($W_3 - W_2$)/ $W_1 \times 1$	00) =	=7.65
% of dissolved binder =		47,49;
Observations: dissolution of	binder, color of	liquid:
Characterization of Sand:		7 - 3
Microscopic Examination	% Finer than	4.75 mm 2.36 mm 1.18 mm 600 um 130 1
		150 um = 5 - 5 '

MORTAR ANALYSIS: DATA SHEET

1	Name	Sample No.	7-m-r	<u> </u>
1	Date	Origin of	sample_	-20:
	Visual description of sample inclusions, etc.):	(color,	textur	÷_
			Li	Limegreen
	<u>Mortar Analysis</u> :			
	Original weight of powdered samp	le (W ₁) =		2: 25
	Weight of filter paper (W ₂) ≃		6.	25 + 154 = 6.79
	Weight of filter paper + dry fin	es $(W_3) =$		\\.31
	Weight of dry fines $(W_3 - W_2) =$		_	<u>4. 51</u>
	Weight of dry sand $(W_4) =$		_	11.51
	% of sand $((W_4/W_1) \times 100) =$			45.24-
,	% of fines ((W ₃ - W ₂)/W ₁ x 100)	=		<u> </u>
	% of dissolved binder =			30175
	Observations: dissolution of bir	nder, color	of liqu	id:
		•		
	Characterization of Sand:			11150
	Microscopic Examination	% Finer t		mm
			1.18 600 300 150 75 53 38	um
			ຸ , ວິ ,	

	MORTAR ANALYSI	S: DATA SHEET	10	
Name		Sample No.	5m-m	
Date		Origin of sat	aple monusian	6-10-
Visual descripti inclusions, etc.)	: Buch umber	incolor lu	exture, hardness	i.
		Liquel 3	B Limquen	
Mortar Analysis :				
Original weight o	f powdered samp	le (W ₁) *	25.01	
Weight of filter	paper (₩ ₂) *		624 + 156 6.8	o
Weight of filter	paper + dry fin	es (W ₃) =	_11.89	
Weight of dry fin	es (W ₃ - W ₂) =		5.09	
Weight of dry san	d (W ₄) =		_11.03	
% of sand ((W ₄ /W ₁) x 100) =		4.15	
% of fines ((W ₃ -	- W ₂)/W ₁ x 100)		20.0%	
% of dissolved bi	nder =		23555	
Observations: dis	solution of bin	der, color of	liquid:	
			11.0~	
Characterization	of Sand:			
Microscopic Exam	ination	% Finer than	2.36 mm	
			1.18 mm 134	
			300 um 1 6 1	: : : -
			75 um <u>77</u>	
			38 um	

Name______Sample No. /hm-m

Date			E sample Monay	
	al description of usions, etc.): Hard	morn spaint sample (color chunts dina	sample blow (eili	
Orig Weig Weig Weig Weig	ar Analysis: inal weight of powder tht of filter paper (W tht of filter paper + tht of dry fines (W ₃ - tht of dry sand (W ₄) = is sand ((W ₄ /W ₁) x 100 is fines ((W ₃ - W ₂)/W ₁	2) = dry fines (W ₃) = W ₂) =	5.79 + 2 : 13 5 54	.07 .53=6.32 q;. .34 q; .4 q; .20 70 .4 q; -2
Obset Cha	Edissolved binder = ervations: dissolution racterization of Sand: roscopic Examination	Line 1. 12 - 3124	r of liquid: than 4.75 mm 2.36 mm	3 2 8
		. \	1.18 mm 600 um 300 um 150 um 75 um 53 um 38 um	7 H. 67 52 7 H 136 G. 1 2 3 13 10 273 1 2 3 13 10 273

Name	Sample No	m- m
Date	Origin of sa	imple ////
Visual description of sample inclusions, etc.):	(color,	texture, hardne
- You any ment o		Orange Liquid
Mortar Analysis :		
Original weight of powdered samp	le (W ₁) =	25.16
Weight of filter paper (W ₂) =		6.20 + 52-6.7
Weight of filter paper + dry fin	es (W ₃) =	9,40
Weight of dry fines $(W_3 - W_2) =$		2.67
Weight of dry sand $(W_4) =$		12.38
% of sand $((W_4/W_1) \times 100) =$		442 = 2
% of fines $((W_3 - W_2)/W_1 \times 100)$	=	265
% of dissolved binder =		40.250
Observations: dissolution of bir	der, color o	f liquid:
		2,33
Characterization of Sand:		
Microscopic Examination	% Finer tha	2 . 36 mm 2 . 25 600 um 300 um 150 um

	MORTAR ANALYSIS: DATA SHEET
	NameSample No. B-m-m A
	Date Origin of sample Monasken The nor name space above product Nicheles White Pointing more recommend of manifoldings
	Visual description of sample (color, texture, hardness, inclusions, etc.): white - hard (savus Size a agrayut
	From Sherds
	Mortar Analysis:
	Original weight of powdered sample $(W_1) = \frac{2S_1 H}{2S_1 H}$
	Weight of filter paper $(W_2) = 5 \underbrace{22 - 53}_{53} \underbrace{23}_{5}$
	Weight of filter paper + dry fines $(W_3) = \frac{7.45}{2}$
	Weight of dry fines $(W_3 - W_2) = \frac{1.4 \circ c_2}{1.4 \circ c_2}$
	Weight of dry sand $(W_4) = \frac{9.29}{}$
	* of sand $((W_4/W_1) \times 100) = 36.9 \%$
	* of fines $((W_3 - W_2)/W_1 \times 100) = \frac{-4.38\%}{}$
	of dissolved binder = \frac{158.62\gamma}{2}
	Observations: dissolution of binder, color of liquid:
	- -
-	6.27
	Characterization of Sand:
	Microscopic Examination % Finer than 4.75 mm
	1.18 mm 600 um
	300 um <u>? 57 l</u> °
	53 um 38 um
	9 1

MORTAR ANALYSIS: DATA SHEET

NameSample No3-m-m-8
Date June 14 Origin of sample monaster
Visual description of sample (color, texture, hardness, inclusions, etc.): Illume Impart Parch Umber 1900 Chunks of Lime Percha of Seeth
Mortar Analysis:
Original weight of powdered sample $(W_1) = \frac{15.30}{}$
Weight of filter paper (W_2) = 6.36 \(\times \). \(\frac{5}{6} \)?
Weight of filter paper + dry fines $(W_3) = 15.25$
Weight of dry fines $(W_3 - W_2) = 8.33$
Weight of dry sand $(W_4) = 9.51$
% of sand $((W_4/W_1) \times 100) = \frac{3.7.73}{3}$
* of fines $((W_3 - W_2)/W_1 \times 100) = \frac{33.5}{}$
* of dissolved binder = 27 cars
Observations: dissolution of binder, color of liquid:
J. 44
Characterization of Sand:
Microscopic Examination \$ Finer than 4.75 mm 2.36 mm 2.31
1.18 mm 1.42
300 um 21 31 3 150 um (c) 150 um
75 um 12 7.2 2 2 53 um 17 10 2 2 2
. • 1 31

ı v			

NameSample	No. 14-m-m
loking	of sample Monaster (Modern)
Visual description of sample ${f q}$ col	lor, texture, hardness,
inclusions, etc.): White, Chunks of	dima, hard
7 7 7	. 7(1)
	1: Yellow orange
Mortar Analysis :	
Original weight of powdered sample (W_1) = 25.16
Weight of filter paper (W ₂) =	6.24 + 57 = 6.81
Weight of filter paper + dry fines (W_3) = <u>9.65</u>
Weight of dry fines $(W_3 - W_2)$ =	2.84
Weight of dry sand $(W_4) =$	12.22
% of sand $((W_4/W_1) \times 100) =$	42
% of fines $((W_3 - W_2)/W_1 \times 100) =$	3,
% of dissolved binder =	<u> </u>
Observations: dissolution of binder, o	color of liquid: 100-200-1
	•
	12.19
Characterization of Sand:	
Microscopic Examination % Fir	ner than 4.75 mm
	1.18 mm (7)
	300 um 3 22 7377
	150 1 23
	150 um
	75 um 3/7

1

	ζ
MORTAR ANAL	YSIS: DATA SHEET
Name	Sample No. 16-m-m
Date	Origin of sample monasky
Visual description of saminclusions, etc.): ω hale	aple (color, texture, hardness, Pluter - fine feven
	Ironsham)
Mortar Analysis :	
Original weight of powdered s	sample (W ₁) = 25, 4
Weight of filter paper (W ₂) =	= 1-3/
Weight of filter paper + dry	fines (W ₃) = 7665
Weight of dry fines $(W_3 - W_2)$	1.40 €
Weight of dry sand (W_4) =	12,794
* of sand $((W_4/W_1) \times 100) =$	51.07%
% of fines (($W_3 - W_2$)/ $W_1 \times V_2$	100) =
% of dissolved binder =	43 34 90
Observations: dissolution of	binder, color of liquid:
	12, 2016, 2011,
Characterization of Sand:	
Microscopic Examination	07°
	1.18 mm 2 2500
	300 um
	75 um 53 um 53 vm
	38 um
	• 5 5

268

MORTAR ANALYSIS: DATA SHEET

NameSample NoS-m-m	
Date Origin of sample nontry	
Visual description of sample (color, texture, hardness, inclusions, etc.): which have a wifety and state for the world.	
 Name and American	
Mortar Analysis:	
Original weight of powdered sample (W ₁) = 22.7	
Weight of filter paper (W_2) = $(32.35.55)$: 687	
Weight of filter paper + dry fines $(W_3) = \frac{7.98}{100}$	
Weight of dry fines $(W_3 - W_2)$ =	
Weight of dry sand $(W_4) = \frac{1179}{1}$	
\$ of sand ((W ₄ /W ₁) x 100) = <u> </u>	
* of fines $((W_3 - W_2)/W_1 \times 100) = \frac{74\%}{}$	
♦ of dissolved binder = 5.0 \$\frac{5}{2}.42	
Observations: dissolution of binder, color of liquid:	
7.76	
Characterization of Sand:	
Microscopic Examination % Finer than 4.75 mm 2.36 mm 2.37 722 7	
1.18 mm (25) · · · · 600 um (27) · · ·	
300 um <u>5.5</u>	
150 um <u>4,c/ 1.</u> 75 um <u>5 : 1</u> ?	
53 um 75%	

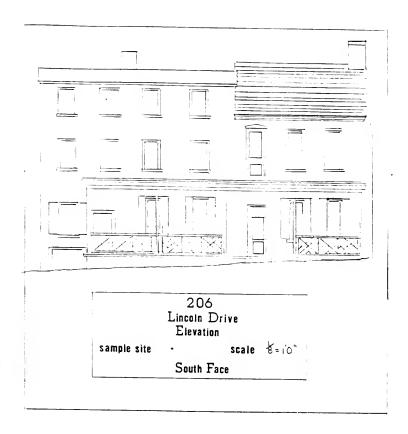
MORTAR ANALYS	IS: DATA SHEET
Name	Sample No. 17 m-m
Date	Origin of sample n'ce
- 10 2 d 3 1 0 1 d 3 1 d	e (color, texture, hardness,
- Mira insta	
Mortar Analysis:	
Original weight of powdered samp	ple (W ₁) = 25.05
Weight of filter paper $(W_2) =$	
Weight of filter paper + dry fir	nes (W ₃) = 9.77
Weight of dry fines $(W_3 - W_2) =$	2.92
Weig- of dry sand (W_4) =	19.75
% of sand $((W_4/W_1) \times 100) =$	= 9 9
% of fines $((W_3 - W_2)/W_1 \times 100)$	<u> </u>
% of dissolved binder =	<u>24,43</u> 75
Observations: dissolution of bir	nder, color of liquid:
Characterization of Sand:	14.72
Microscopic Examination	
	* Finer than 4.75 mm
	1.18 mm
	300 um 3 > 7 150 um - 1/123 19
	53 um 1.71 12 22
	38 um
	مواسا يولان

Name Sample No. 21-m-m Date Jone 16 1988 Origin of sample Intero- yeu Well partor about trudeor from The color to the partor inclusions, etc.): Variable in the partor of sample (color, texture, hardness 20-m inclusions, etc.): Variable in aggregat size, fundament of the partors of the p	ره.
Mortar Analysis: Original weight of powdered sample (W ₁) = 25.65 Weight of filter paper (W ₂) = 320 + 3056, 30 Weight of filter paper + dry fines (W ₃) = 306, 30 Weight of dry fines (W ₃ - W ₂) = 1.336, 30 Weight of dry sand (W ₄) = 1.336, 30 Weight of dry sand (W ₄) = 1.336, 30 Yeight of dry sand (W ₄) = 1.336, 30 Yeight of sand ((W ₄ /W ₁) x 100) = 1.336, 30 Yeight of fines ((W ₃ - W ₂)/W ₁ x 100) = 1.336, 30 Yeight of dry sand (W ₄) = 1.336, 30 Yeight of	
Characterization of Sand: Microscopic Examination 3 Finer than 4.75 mm 2.36 mm 3.6 1.18 mm 3.6 3.0 um 7.79 150 um 7.79 150 um 4.42 28.42 38 um 15.31 42	

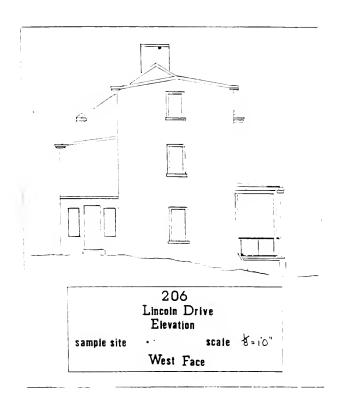
MORTAR ANALYSIS: DATA SHEET

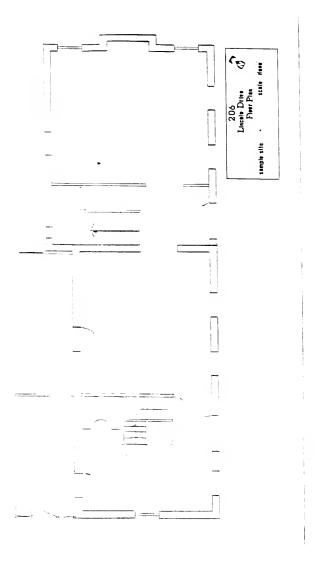
<u> Appendia #15</u> D-6 L moden bri a

Clevations and Floor lans Elevations are from the Fairmount Funk Commission file: Los Lincoln Orive, Floor plans were cone from Visite. Enspection of the building.



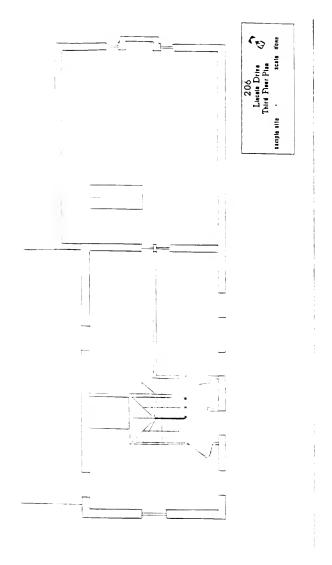












<u>Popendia #15</u> 206 Lincoln Grize Chain of Title From the Title Registry of the Department of Populas. Philadelphia City Hall. Philadelphia Pennsylvania

Chain of Title for 206 Lincoln Drive

The first seven transaction are contained in a Deed between William Rittenhouse on the one part and Jacob and Abraham Rittenhouse on the other. This deed was found in the Feter Rittenhouse envelope, Fairmount Park Commission Files. City Archives, City Hall Annex, Philadelphia Pa.

June 4, 1690

From William Harwood To Samuel Carpenter 20 acres part of a 100 acre tract of land Cited in next deed

 $\,$ Agreement between Samuel Carpenter on the one part and William Rittenhouse (First Generation) and others for ground rent of 20 acers of land for the next 990 years.

Cited in newt deed

Feb. 9, 1705/6 From Samuel Carpenter Cited in next Deed To William Rittenhouse (1st gen.)

Deeds 20 acres ,a paper mill and other improvements for 975 years with a ground rent of 5 shillings sterling payable on september 9th, of each year.

Feb. 12, 1705/6 From William Rittenhouse Cited next Deed To Claus Rittenhouse

For three-1/4 parts of 20 acers of land, a paper mill and improvements. Subjected to a ground rent of 5 shillings a year payable on September 9th, of each year. To Samuel Carpenter, And one pepper Corn to William Rittenhouse per year.

1708 From William Rittenhouse Cited in next deed To Clause Rittenhouse One-1/4 part of the above described lot.

William Rittenhouse dies intestate and Clause being the only son inherits the last portion of the 20 acres and paper mill.

May 24, 1734 Will of Clause Rittenhouse Will Book: E To William Rittenhouse (2nd. Gen.) pg. 280 20 acers and Paoer mill

Nov, 21 1760 From William Rittenhouse (2nd. Gen.) Paper maker To Jacob and Abraham Rittenhouse, Paper makers

For the sum of 370 pounds sterling 18 acers containing a paper mill , and singular

other mesuage tenement building, edifices improvements ways passages mill dams mill race head waters and other water course. Subjected to a yearly rent of 5 shillings sterling payable to Samuel Carpenter.

The above deed found in Feter Rittenhouse envelope in the Fairmount park commission files. City Archives.

March 1, 1785

From Jacob Rittenhouse Paper Maker Deed Book:D

Abraham Rittenhouse, Miller vol 27 pg.55

To William Rittenhouse (2rd. Gen.) Miller

For 1000 pounds silver or gold.

Three lots of ground. The first contianing 9 acres and stone messuage, part of the 18 acre lot that William Rittenhouse (2nd. Sen.) sold to Jacob and Abraham Rittenhouse. The second lot containing 4 and 1/2 acre and 192 perches. The third a ten acer lot with grist mill. The first lot is subjected to a ground rent of 3 pence per acre payable on the 29th day of september to Samual Carpenter.

Break in chain. William Rittenhouse
Maybe to Henry Rittenhouse

Nov. 23. 1812 From Henry Rittenhouse Cited in next deed To Daniel Rittenhouse and

Jacob Rittenhouse Both have equal shares Two lots

1/2 share of 2 lots

April 21, 1817 From Jacob Rittenhouse Cited in next Deed To Daniel Rittenhouse

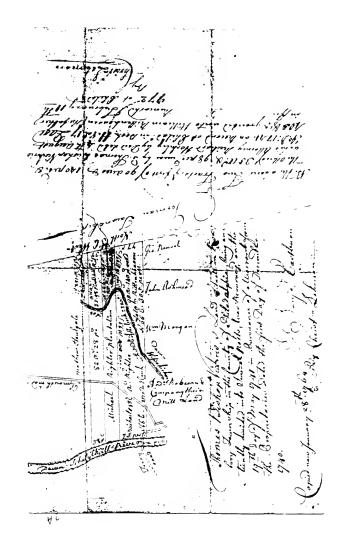
Sept. 24, 1851 From Daniel Rittenhouse Deed Book: GWC.
To Johathan Rittenhouse Farmer vol.122,pg 420
5 lots of land contianing
20 1/2 acres, Paid 4000 dollars

Lot # 3 has a ground rent of 3 pence per acre payable on September 29th of each year. Also an old paper mill on this same lot is excluded from the deed. This is the same property of 9 and 1/2 acres.

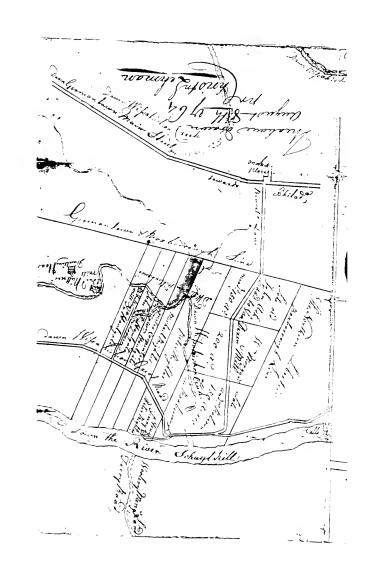
Jan. II. 1881	Will of Jonathan Rittenhouse To Naomi Rittenhouse	Will Book:60 pg.219 #o0 1881
March 1887	Will of Naomi Rittenhouse To William G. Foulke Last surviving Trustee	Will Book: 142 pg. 549 #283. 1889
May 27, 1891	From William G. Foulke To William Umsted Paid One Dollar	Deed Book:TG. vol.60 pg.129
April 23. 1914	From William Umsted To Providence General Hospital	Deed Book: ELT vol.335pg.403
July 21, 1917	From Providence General Hospital To City of Philadelphia	Deed Book: JMH vol.252pg.127

<u>Appendiz #17</u> Christian Lehman Sur∀e∀s From the Christian Lehman Papers. Oxborough File. Manuscripts Department, Historical Addition of Penn Williams Philadelphia Fennsylvania.

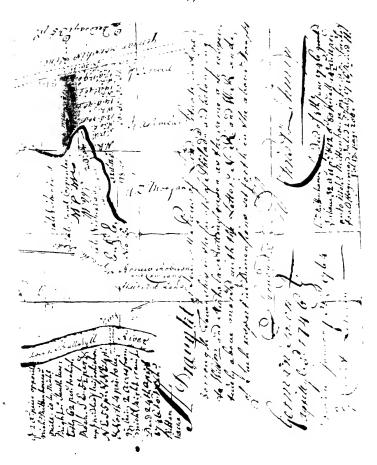














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Appendi. #18 Will of Johathan Rittennouse, #63-1861: Megister of Wills, City Holl Annex, Sciladelphie Ternsylvania.



Inventory of Johathan Rittenhouse

.....40.00

By Robert Thomas and Howard W. Lloyd. Febuary 1881

Household Goods:

Other Property listed.

Clock

Cupboard .	5.00		
Settee .	1.00		
Dining Table and Chairs	s 6.00		
Kitchen Furniture and (Cooking Utinsils10.00		
Bedstead and Chamber Ca	arpet 5.00		
Bureau	10.00		
Stove	2.00		
Single Bedstead	2.00		
	loth 5.00		
	rpet		
Contence of Barn:			
Cow	40.00		
	36.00		
Dearborn Harness	6.00		
Cart Gears	5.00		
Garden Tools	1.50		
Wheel Barrow			
	7.00		
	20.00		
Old Carriage	20.00		
	40.00		
Lead Pipe	8.00		
	2.50		
Chickens	5.00		
	issahickon Ave, Homestead, Teniment	Barn	and

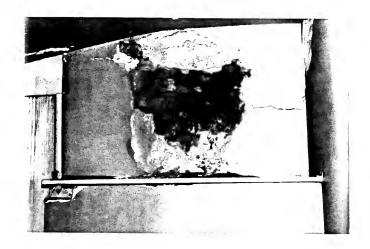
Will of Johathan Rittenhouse, #63-1881: Register of Wills,City Hall Annex, Philadelphia Pa.

other Buildings620,00

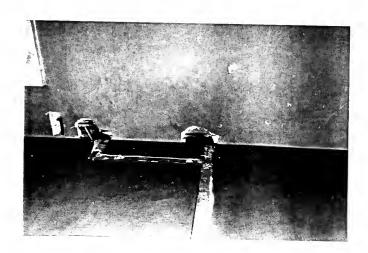
<u>Appendix #19</u> Water damage caused by roof leak.

<u>Oppendia 929</u> Rockland Paint Data Weets

Third floor west Poom. water damage is the chamber space, and the chamber space.



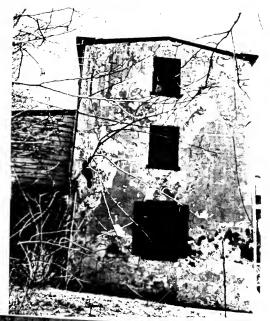
Third-floor west room: evidence of the removal of an old electrical system. The ceiling and walls were never repaired.





BDG Lincol, Drive:

The paint is peeling in all surfaces and the Girch ceiling is in poin condition.







<u>East Elemation</u>

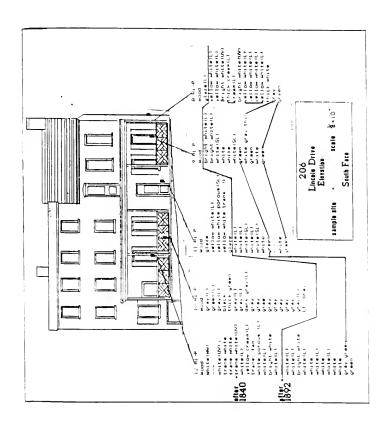
This is the newer Mictorian addition but the same conditions still persist (peeling paint and stude: .The north elevation als: shows the same problems



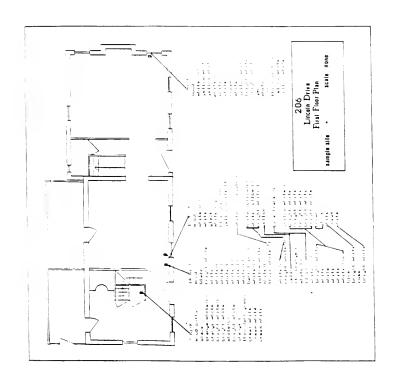


<u>Appendiz #21</u> 206 Lincoln Drive Paint Sample Stratigraphy

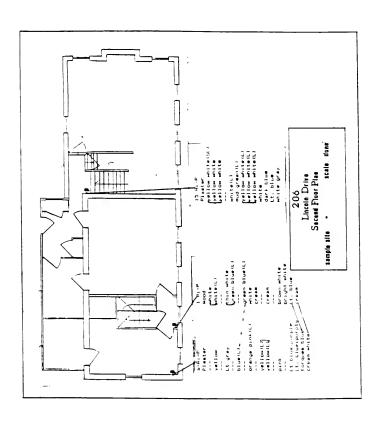




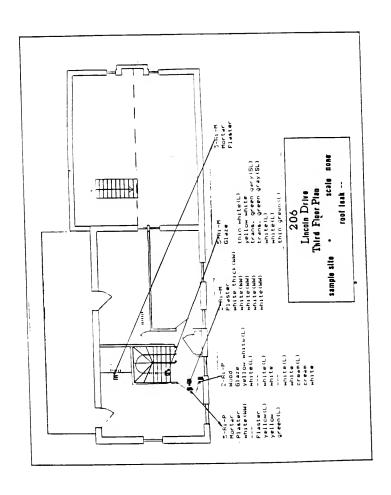








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<u>Bppendi. #22</u> 206 Lincoln Brive Paint Data Sheets

	£ **	

cation of Sample 1540* 45k th old	5054.0	a Moor iam's to WP	st room
ructure N. Hans 2 1 A 1 A cation of Sample Ind 2 1 A 1 A cate Removed March 1547 Removed	vea By	m	
gnificant facts Regarding the Structure	s misi	ory which hay reital	in the
The Analysis (dateconstructed, signif	icant a	alterations, dates pa	inted)
ATA: Microscopic Analysis			
			(11 5)
	tion of	Sodium Sulfide	(NanS)
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	
Shellac (S)		Water	(円,0) (内)
Wall paper (W)		Alcohol	(TURP)
Fracture ()		Turentine	(UV)
Dirt Layer (-)		Neat UV Light	(01)
			
ote layers of decorative painting, if a	ny: (gi	aining, marbleizing,	polychron
ote layers of decorative painting, if a ct.).	any: (gi	aining, marbleizing,	polychron
Chromochronology Comments		Chromochronology (
ct.)Chromochronology Comments		Chromochronology (Comments
ct.)Chromochronology Comments	. 16	Chromochronology (Comments
Chromochronology Comments	16 17	Chromochronology (Comments
Chromochronology Comments	16 17	Chromochronology (Comments
Chromochronology Comments ubstrate: hood hit was well where the	16 17 18 19 20	Chromochronology (Comments
Chromochronology Comments	16 17 18 19 20 21	Chromochronology (Comments
Chromochronology Comments ubstrate: hood hit Note hit	16 17 18 19 20 21 21	Chromochronology (Comments
Chromochronology Comments ubstrace: hood white has held and held And held firstend the Nels firstend the Nels firstend the Nels	16 17 18 19 20 21 21 22 23	Chromochronology (Comments
Chromochronology Comments inbstrate: hood thirt hood chartha Nels furnit his Nels furnit his Nels	16 17 18 19 20 21 21 22 23 24	Chromochronology (Comments
Chromochronology Comments inbstrate: hood thirt hood chartha Nels furnit his Nels furnit his Nels	16 17 18 19 20 21 21 22 23 24	Chromochronology (Comments
Chromochronology Comments ubstrate: hook history Arrows the News	16 17 18 19 20 21 22 23 244 25 26	Chromochronology (Comments
Chromochronology Comments ubstrate: hook - hat -	16 17 18 19 21 22 23 24 25 25	Chromochronology (Comments
Chromochronology Comments ubstrate: hook white the Mail white the Mail fortain t	16 17 18 19 20 21 22 23 24 25 26 27	Chromochronology (Comments
Chromochronology Comments ubstrate: hood hit chromochronology Comments ubstrate: hood hit french french	16 17 18 19 20 21 22 23 24 25 26 27 27 29	Chromochronology (Comments
Chromochronology Comments ubstrate: hook white the Mail white the Mail fortain t	16 17 18 19 20 21 22 23 24 25 26 27 27 29	Chromochronology (Comments
Chromochronology Comments ubstrate: hood hit chromochronology Comments ubstrate: hood hit french french	16 17 18 19 20 21 22 23 24 25 26 27 27 29	Chromochronology (Comments



ocation of Sample		
Date Removed	Remove	ed By
N-DEPTH MICROSCOPIC/CHEMIC	NAT ANALYSTS	
Purpose of Phase II Analysi	is_#/	
No. of Layers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of L glassiness, ropiness, ect.)		lative thinness, thickness
glassiness, ropiness, ect.,	·	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	stratigraphy, if necessary.
Possible medium	Chemical	Reaction
Oil	<u>Dmf</u>	<u> </u>
Later		
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separa necess	ary.)	
	ary.) traviolet: yesno	
necess Flourescence under near ul Probable pigment associate Possible Pigment Type	traviolet: yes no de vith flourescence:	
necess Flourescence under near ul Probable pigment associate Possible Pigment Type	traviolet: yes no de vith flourescence:	, ColorReaction
Possible Pigment Type H / /ea/	ary.) traviolet: yes no d with flourescence: Spot Test	Reaction
Possible Pigment Type	traviolet: yesno d with flourescence: Spot Test # 3 # 7	, ColorReaction
Possible Pigment Type	traviolet: yesno d with flourescence: Spot Test # 3 # 7	Reaction
Possible Pigment Type H / /ea/	traviolet: yesno d with flourescence: Spot Test # 3 # 7	Reaction
Possible Pigment Type H/ (AA) // (AA)	ary.) traviolet: yesno d with flourescence: Spot Test # 3 \textsup 7	Reaction
Possible Pigment Type Propable Pigment(s):	ary.) traviolet: yesno d with flourescence: Spot Test # 3 \textsup 7	Reaction
Possible Pigment Type H/ (AA) // (AA)	ary.) traviolet: yesno d with flourescence: Spot Test # 3 \textsup 7	Reaction
Possible Pigment Type # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /ea/ # / /	ary.) traviolet: yesno d with flourescence: Spot Test # 3 VI NaOH clor standards; place unc	Reaction
Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type: Probable pigment(s): Probable medium: COLOR: (Match sample to co	ary.) traviolet: yesno d with flourescence: Spot Test # 3 P7 NaOH polor standards; place unoprate.)	Reaction Willow Reaction Reaction Willow Reaction Reaction
Possible Pigment Type # / / / / / / / / / / / / / / / / / /	ary.) traviolet: yesno d with flourescence: Spot Test # 3 P7 NaOH polor standards; place unoprate.)	Reaction Willow Reaction Reaction Willow Reaction Reaction
Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment Type Possible Pigment AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to copurposes if appropriate pigment propriate pigment pig	ary.) traviolet: yesno d with flourescence: Spot Test # 3 P7 NaOH polor standards; place unoprate.)	Reaction Willow Reaction Reaction Willow Reaction Reaction
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Probable pigment associate Possible Pigment Type H / (ead) / fead	ary.) traviolet: yesno d with flourescence: Spot Test # 3 P7 NaOH polor standards; place unoprate.)	Reaction Willow Reaction Reaction Willow Reaction Reaction
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gnificant Facts Regarding The Str	ucture's His	ory Which May Pertain	The
The Analysis (dateconstructed,			
addition		•	
Th. M:			
TA: Microscopic Analysis			
DES -Finish (F)	Reaction of	Sodium Sulfide	(Na _s S
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH ₂ C
Shellac (S)		Water	(H,O)
Wall paper (W)		Alcohol	(PD)
Fracture ()		Turentine	(TURF
Dirt Layer (-)		Near UV Light	(UV)
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		-	
	, if any: (gr	aining, marbleizing,	polychro
ote layers of decorative painting		aining, marbleizing,	
Chromochronology Comments		Chromochronology Co	mments
ch.)Chromochronology Comments	16.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Nag 1 me	16.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Nag 1 me	16. 17.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Up National National Flores	16. 17. 18.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Nag Dime ubstrate Nag Strume	16. 17. 18. 19.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Nag Dime ubstrate Nag Strume	16. 17. 18. 19. 20. 21. 21.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand - Utilian wait: Nan Elecet - Uhit Man Ray Fried	16. 17. 18. 19. 20. 21. 22	Chromochronology Co	nments
Chromochronology Comments ubstrate: Vand White Wast Nag Dime White Nag France White Nag France	16 17. 17. 18. 19 20. 21. 22. 23	Chromochronology Co	nments
Chromochronology Comments ubstrate: Vand Up Naz D ME Up M M May S France What May S France What May S France	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vand Upfler war: Nan Dime Ubstrate Nan France	16.17.18.19.20.21.22.23.24.25	Chromochronology Co	nments
Chromochronology Comments ubstrate: V222 United Way: Naz Dome United Way: First What May From What May From What May From United Way: Property 1. Crisson Nas Property 1. Crisson Nas Property	16. 177. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vond Up How Man Front Whith Man Front Whith Man Front Whith And Front Office Man Front Crisco M	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Co	mments
Chromochronology Comments ubstrate: Vond - Unite Vond -	16.6.17.18.19.20.21.21.22.23.24.25.26.27.28	Chromochronology Co	mments
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Chromochronology Comments ubstrate: Vond - Unite Vond -	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Co	mments
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Chromochronology Comments ubstrate: Vand Up Nan Flore Uh H	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Co	mments
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Structure		
Location of Sample		
Date Removed	Removed By	
Dec Removed		
IN-DEPTH MICROSCOPIC/CHEMICAL		<u></u>
Purpose of Phase II Analysis	# /	
No. of Layers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of Laye	er to be Matched: (relative	thinness, thickness
glassiness, ropiness, ect.):_		
<u> </u>		
MEDIUM ANALYSIS: (Separate par	int/fimishlayer from stratig	raphy, if necessary.)
Possible medium	Chemical	Reaction
0i1 _	DMF	
Latex		
Whitewasn/calcimine		
Waterbased/distemper		
Varnish	·	
Shellac _		
		
PIGMENT ANALYSIS: (Separate necessary Flourescence under near ultra Probable pigment associated w	.) violet: yes	
n 111 n:	C . m .	
Possible Pigment Type	Spot Test	Reaction
# 2 White lead	<u> </u>	
#37,00x	EH E. (ON)	Blue gray Color
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Prince Probable medium:	- White (e.d 14 haseen	-11
COLOR: (Match sample to color purposes if approprat		light for bleaching
Butens paint color	Sherwin-Williams	
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	

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The Analysis (Au fe Regardi datecon	ng The Structed,	ructure's Hist significant a	In E. Wall Microry Which May Fertain alterations, dates par	inted)
ATTA Mismosopis	too l vos				_
ATA: Microscopic ODES -Finish (I Primer (I Glaze (C Varnish (I Shellac (S Wall paper Fracture (Fracture (I)	7) 3) 4) 5) (W)	s	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine	(Na,S (HCI) (DMF) (CH,C) (H,O) (Ofi) (TURP
ote layers of de		e painting	;, if any: (gr	Near UV Light	(UV)
Chromochr	onology Na2S		1cHzcla	Chromochronology Co	1_
·White		Horaus	17	yellow white +	
· yellow white		1 -	18.		_
	-	+	+ 19		
· ight		+	19		
·		+	± 20.		
·hit	 		+ 21.		
· Cream	1 -1 -	1	1 - 22.		
· White	Stight	+	+ 23		
· yellow . h.	 +	+	- 24		
0. prohl while		1			
1. beckt robin		-	11)100- 40	•	
2. solit is esint.		<u> </u>		•	
.3. <u>h.</u>		1	10mg 40		
14. thick white		Fluorscia	JDh < 29		
15. willow white	i		70mc 30		
Summary:					



Phase II: Analysis and Recom Structure	mendations 5	
Location of Sample		
Date Removed		d By
IN-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
Purpose of Phase II Analysis	#1 of zine oxide	afk. 1848
No. of Layers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of La glassiness, ropiness, ect.):		lative thinness, thickness
MEDIUM ANALYSIS: (Separate p	paint/finishlayer from s	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	Dmf	laners soften
Latex		THE TOP IE
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ultr Probable pigment associated	cy.)	
	Ten Housestelle:	10/2 02
Possible Pigment Type	Spot Test	Reaction
ZMC OX	. <u>2</u> m	/
PIGMENT AND MEDIUM TYPE:		
	. ,	
Probable pigment(s): 2m	1 0x1de	
Probable medium: //20	20 6 01/	
COLOR: (Match sample to col purposes if appropr	or standards; place und	ler UV light for bleaching
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		·
C1-/-1-3- NO-		
Report prepared - Date:	By Whom:	



Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) ote layers of decorative painting, if any: ct.). Chromochronology Comments ubstrate: Mortac Anhite - Csep Hill	of (gra	Sodium Sulfide Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(Na_S (HCI) (DMF) (CH_C (H_0) (OH) (TURP (UV)
TA: Microscopic Analysis DES -Finish (F) Reaction Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) cote layers of decorative painting, if any: ct.). Chromochronology Comments ubstrate: Mortac Analis - Esep (Hill)	(gra	Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(HCI) (DMF) (CH ₂ C) (H ₂ O) (OH) (TURP (UV)
TA: Microscopic Analysis DES -Finish (F) Reaction Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) cote layers of decorative painting, if any: ct.). Chromochronology Comments ubstrate: Mortac Analis - Esep (Hill)	(gra	Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(HCI) (DMF) (CH ₂ C) (H ₂ O) (OH) (TURP (UV)
TA: Microscopic Analysis DES -Finish (F) Reaction Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) cote layers of decorative painting, if any: ctt.). Chromochronology Comments ubstrate: Moriac Abbit - Coop Hill	(gra	Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(HCI) (DMF) (CH ₂ C) (H ₂ O) (OH) (TURP (UV)
DES -Finish (F) Reaction Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) Dirt Layer (-) Chromochronology Comments ubstrate: Mortac Labit - Cape Hill	(gra	Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(HCI) (DMF) (CH ₂ C) (H ₂ O) (OH) (TURP (UV)
Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) Chromochronology Comments ubstrate: Mortac Labit - Cape Hill	(gra	Hydrochloric Acid Damethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light aining, marbleizing, p	(HCI) (DMF) (CH ₂ C) (H ₂ O) (OH) (TURP (UV)
Claze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) ———————————————————————————————————	(gra	Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(DMF) (CH ₂ C (H ₂ O) (OH) (TURP (UV)
Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) te layers of decorative painting, if any: tt.). Chromochronology Comments ubstrate: Mortac Labit Cree Hill	(gra	Methylene Chloride Water Alcohol Turentine Near UV Light	(CH ₂ C (H ₂ O) (Off) (TURP (UV)
Shellac (S) Wall paper (W) Fracture () Dirt Layer (-) tote layers of decorative painting, if any: ct.). Chromochronology Comments ubstrate: Mortac Labit Tage: Hill	(gra	Water Alcohol Turentine Near UV Light aining, marbleizing, p	(H,0) (OH) (TURP (UV)
Wall paper (W) Fracture () Dirt Layer (-) Dirt Layer (-) Chromochronology Comments Chromochronology Comments Chromochronology Comments	(gra	Alcohol Turentine Near UV Light aining, marbleizing, p	(OH) (TURP (UV)
Tracture () Dirt Layer (-) bote layers of decorative painting, if any: ct.). Chromochronology Comments ubstrate: Mortac Labit: Teep: Hill		Turentine Near UV Light aining, marbleizing, p	(TURP (UV)
Dirt Layer (-) Chromochronology Comments Ubstrate: Mortac Labit: Tsee: Httl		Near UV Light	(UV)
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Chromochronology Comments ubstrate: Mortoc · Jahit: Tepe: Httl			
Chromochronology Comments ubstrate: Mortoc · Jahit: Tepe: Httl			
Chromochronology Comments ubstrate: Mortoc · Jahit: Tepe: Httl			
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00. 11. 22. 33. 44.	17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology Com	
15.	30.		
Summary:			



Phase II: Analysis and Recomm Structure	1	
Location of Sample		
Date Removed	Removed B	7
IN-DEPTH MICROSCOPIC/CHEMICAL	L ANALYSIS	
Purpose of Phase II Analysis		
No. of Layers to be Studied		· · · · · · · · · · · · · · · · · · ·
Reason for Layer Selection:		
Visual Characteristics of Laglassiness, ropiness, ect.):	yer to be Matched: (relati	ve thinness, thickness
MEDIUM ANALYSIS: (Separate pa	aint/finishlayer from stra	tigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil		
Latex		
Whitewash/calcimine		
Varnish		
Shellac		
		
		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ultr Probable pigment associated	ry.) raviolet: yesno, Co	
	Ten Flourescence.	
Possible Pigment Type	Spot Test	Reaction
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Probable medium:		
COLOR: (Match sample to color purposes if appropra		JV light for bleaching
Butens paint color	Sherwin-William	ns
RECOMMENDATIONS		
Color:		
Paint Type:		
DOGING TO TOU		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	Bv Whom:	



Phase I	i: Segueno	ce of Layers 5- 6	21-P/also	mortir	
Structi	ire (Cuta	la howe			
Locatio	on of Sami	pie ~ ~d +\~~ ♂.	GC 2+ EVCZ		
Date Re	emoved $\underline{\mathcal{W}}$	N. (i. 22	Removeo By	MIJ tory Which May Pertai	
Signifi	icant Fac	ts Regarding The S	tructure's His	tory Which May Pertai	n The
To The	Analysi	s (dateconstructed	. significant a	alterations, dates pa	inted)
	Jeckion	added to orie	V= 5, 5 2+	ory Structure	
DATA: !	Microscop	ic Analysis			
CODES -	-Finish	(F)	Reaction of	Sodium Sulfide	- (Nass)
	Primer			Hydrochloric Acid	(HCI)
	Glaze			Dimetnvlformamide	(DMF)
	Varnish			Methylene Chloride	
	Shellac				(H ₂ O)
				Water	
	Wall pap			Alcohol	(OH)
	Fracture			Turentine	TURP)
	Dirt Lav	er (-)		Near UV Light	· f.k.)
		decorative painting	ng, if any: (gr	aining, marbleizing,	polvenromy
ect.).					
			replaced to the	CI	
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		hronology Commen	S	Chromochronology Co	omments
	ate: Mov				
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Summa	ry:	3	10.4		
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Phase II: Analysis and Recommendation Structure Right.	mmendations > K'	
Location of Sample 3-1	and Stairs	
Date Removed	Remove	d By
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
Purpose of Phase II Analysis	s ree what first w	nite layers
No. of Lavers to be Studied	Д-1	
Reason for Layer Selection:		
Visual Characteristics of Laglassiness, ropiness, ect.)	ayer to be Matched: (rel :	ative thinness, thickness

MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	tratigraphy, if necessary.)
Possible medium Oil	Chemical	Reaction
Latex Whitewash/calcimine	716	
Waterbased/distemper	HCI	
Varnish		
Shellac		
necessa Flourescence under near ult Probable pigment associated	raviolet: yes no ,	Color
Possible Pigment Type		Reaction —
test for a new intensively		
DICACHE AND MEDITAL TYPE.		-
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): White	fr weih	
COLOR: (Match sample to col purposes if appropri	lor standards; place unde	er UV light for bleaching
Butens paint color	Sherwin-Will	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:		
Report prepared - Date:	By Whom:	



Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Methyler Water Alcohol Fracture () Fracture () Fracture () Near UV Mote lavers of decorative painting, if any: (graining, if any: (
ATA: Microscopic Analysis ODES -Finish (F) Reaction of Sodium S Primer (P) Hydrochi Glaze (G) Dimethyl Shellac (S) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Chromochronology Comments Chromochronology Comments	
ATA: Microscopic Analysis ODES -Finish (F) Reaction of Sodium S Primer (P) Hydrochi Glaze (G) Dimethyl Shellac (S) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Chromochronology Comments Chromochronology Comments	
ATA: Microscopic Analysis DDES -Finish (F) Reaction of Sodium S Primer (P) Hydrochi Glaze (G) Dimethyl Varnish (V) Methyler Water Wall paper (W) Alcohol Fracture () Turentir Dirt Laver (-) Near UV Cote lavers of decorative painting, if any: (graining, of the second	n May Pertain The
DDES -Finish (F) Reaction of Sodium S Primer (P) Glaze (G) Hydrochl Dimethyl Varnish (V) Methyler Shellac (S) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Ote lavers of decorative painting, if any: (graining, oct.). Chromochronology Comments Chromochronology Comments Chromochronology Comment	is. dates painted)
DDES -Finish (F) Reaction of Sodium S Primer (P) Glaze (G) Hydrochl Dimethyl Varnish (V) Methyler Shellac (S) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Ote lavers of decorative painting, if any: (graining, oct.). Chromochronology Comments Chromochronology Comments Chromochronology Comment	
DES -Finish (F) Reaction of Sodium S Primer (P) Glaze (G) Hydrochl Dimethyl Varnish (V) Methyler Shellac (E) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Ote lavers of decorative painting, if any: (graining, ic.). Chromochronology Comments Chromochronology Comments Chromochronology Comments	
DES -Finish (F) Reaction of Sodium S Primer (P) Glaze (G) Hydrochl Dimethyl Varnish (V) Methyler Shellac (E) Wall paper (W) Alcohol Fracture () Turencir Dirt Laver (-) Near UV Ote lavers of decorative painting, if any: (graining, ic.). Chromochronology Comments Chromochronology Comments Chromochronology Comments	
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Primer (P) Glaze (G) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Practure () Dirt Laver (-) Chromochronology Comments Chr	ulfide (Na.
Glaze (G) Varnish (V) Varnish (V) Shellac (S) Water Shellac (S) Wall paper (W) Methyler Wall paper (W) More Practure () Mart Laver (-) Chromochronology Comments Chromochronology Co	
Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Chromochronology Comments 16. Lt 8/w	formamide (DMF
Shellac (E) Wall paper (W) Practure () Dirt Laver (-) Cote lavers of decorative painting, if any: (graining, oct.). Chromochronology Comments Chromochronology Comments Chromochron	e Chloride (CH.
Wall paper (W) Fracture () Dirt Laver (-) Oote lavers of decorative painting, if any: (graining, oct.). Chromochronology Comments Chromochronology Comme	(H ₂ O
Turenting Near UV Oote layers of decorative painting, if any: (graining, ict.). Chromochronology Comments 16. Lt 8/Lx 17. turenant 18. Ltd. 19. Ltd. 20. May 7 mm 21. 21. 22. 23. 24. 24. 25. 26. 27. 27. 28. 28. 29. 21. 28. 29. 21. 29. 21. 21. 28. 29. 21. 29. 21. 29. 30.	1 - 4 -
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Ct gray Catheline or Dmf 19. 20. 2	J
20. 20. 21. 22. 22. 23. 26. 27. 28. 27. 28. 29. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20	Ala, G
2. Flue May 9m6 21. 22. 3. Tange Pint No. 5 me 23. 24. 20. wellow May 9m6 25. 21. wellow May 9m6 26. 22. 23. 24. 24. 25. 24. 25. 26. 27. 28. 29. 29. 29.	
22. 23. 24. 10. yellow Alay 2 20. 24. 11. yellow Alay 2 20. 25. 11. yellow 26. 27. 28. 1- 29. 15. Lt blu - Fyele 30.	
3. Trans Pint	
2. 24. 25. 25. 25. 26. 25. 27. 26. 27. 27. 28. 29. 29. 29. 29. 29. 20. 20. 29. 20. 29. 20. 29. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20	
10. well 10. well 10. White 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	
11. sylltr. 16. 20 = 26. 27. 28. 28. 29. 29. 29. 29. 29. 29. 20. 29. 20. 29. 20. 29. 20. 29. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20	
12 27. 28. 28. 14 29. 29. 20. 20.	
13. P	
14	
15. <u>Ct blu - Fuele</u> 30	
•	
Summary:	



Phase II: Analysis and R Structure	ecommendations 6	
Location of Sample		
Date Removed	Remov	ed By
IN-DEPTH MICROSCOPIC/CHE	MICAL ANALYSIS	
Purpose of Phase II Anal	.ysıs	
No. of Lavers to be Stud	1ed	
Reason for Layer Selecti	on:	
Visual Characteristics of glassiness, ropiness, ed	of Layer to be Matched: (rest.):	lative thinness, thickness
MEDIUM ANALYSIS: (Separa	ate paint/finishlayer from	stratigraphy, if necessarv.)
Possible medium	Chemical	Reaction
011	4/ DMF	softened
Latex		
Whitewasn/calcimine Waterbased/distemper	. ———	
Varnish		
Shellac		
51102240		
	arate paint/finish layer f	
Flourescence under near	essary.) ultraviolet: yesno ated with flourescence:	, Color
Possible Pigment T	ype Spot Test	Reaction
/eacl		+
	_	
PICMENT AND MEDIUM TYPE	:	
Probable pigment(s):_/ Probable medium:	ead where	
COLOR: (Match sample to purposes if app		der UV light for bleaching
Butens paint color 5nom	Sherwin-Wi	lliams
RECOMMENDATIONS_		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO:	2,-7	
Report prepared - Date:	T1'25 By Whom:	<u>mar</u>



Phase I: Sequence of Layers Structure 20 (, 614 4, hange occation of Sample from (1147)	1-121-17		
Date Removed March 85	VOOK WORK OPY	posite intrance	
Significant Facts Regarding The			The
To The Analysis (dateconstructe	d, significant ;	lterations, dates par	inted)
DATA: Microscopic Analysis			
CODES -Finish (F)	Reaction of	Sodium Sulfide	(Nass)
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethvlformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH,CL
Shellac (S)		Water	(H,O)
Wall paper (W)		Alcohol	(OH)
Fracture ()		Turentine	(TURP)
Dirt Layer (-)		Near UV Light	(UV)
			
Note layers of decorative paint ect.).			
Chromochronology Comme	nts .	Chromochronology Co	mments
Substrate: wood putty Nazs	_b <u>m</u> ∈_		
1. Glare-Menuh 2. Orthon- why	+ 16.		
2.000			
3. Deany white	10.		
5. Beacht white	20		
6. Berkl	20.		
7. Orange	22		
8. The dad rate	- 23.		
9. Man mark	24.		
10. tream total	- 25.		
11	_ + 26.		
12.	27.		
12.	40.		
14.			
15	30.		
Summary			
Summary:			
Summary:			

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Phase II: Analysis and Recor Structure	mmendations 7-2 -	
Location of Sample		
Date Removed		ed Bv
IN-DEPTH MICROSCOPIC/CHEMIC	AL ANALYSIS	
Purpose of Phase II Analysi	s # 182	
No. of Layers to be Studied	-152	
Reason for Laver Selection:		
Visual Characteristics of L glassiness, ropiness, ect.)		lative thinness, thickness
MEDIUM ANALYSIS: (Separate	paint/finishlayer from	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
011	ime	Toftener ager
Latex		
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
PIGMENT ANALYSIS: (Separat necessary Flourescence under near ult	ary.) traviolet: yesno	, Color
Probable pigment associated	1 with flourescence:	
Possible Pigment Type	L'T	Reaction
(hem, hellow	Silver nitrate	Reland
Three-1. Serie		
PICMENT AND MEDIUM TYPE:		
Probable pigment(s): the Probable medium: /nece	om Wellow w/ White	lend
Frodable medium: /.nree	d ou	
COLOR: (Match sample to co purposes if approp	rate.)	
Butens paint color final	2 (n) Sherwin-Wi	lliams
DECOMPNET TIONS		
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Carrata da MO.		
Report prepared - Date:	By Whom:	



Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Chromochronology Comments Substrate: Vac Wall Color (Chromochronology Comments Chromochronology Comments Color (Chromochronology Comments Chromochronology Comments Color (Chromochronology Comments Chromochronology Comments	f any: (g	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light caining, marbleizing,	(Na.S: (HCI) (DMF) (CH.GO) (Off) (TURP (UV)
ATA: Microscopic Analysis DDES -Finish (F) Re Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Otte layers of decorative painting, 1 ct.). Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments Substrate: Vice Work All In Chromochronology Comments	f any: (g	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing,	(Na.S: (HCI) (DMF) (CH.CI) (H.CI) (Off) (TURP (UV)
ODES -Finish (F) Reference (C) Glaze (C) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Ote layers of decorative painting, 1 oct.). Chromochronology Comments (C) Glaze (C) Mallor (C) Mall	f any: (g	Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(HCİ) (DMF) (CH,CC) (H,O) (OH) (TURP (UV)
ODES -Finish (F) Reference (C) Glaze (C) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Ote layers of decorative painting, 1 oct.). Chromochronology Comments (C) Glaze (C) Mallor (C) Mall	f any: (g	Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(HCİ) (DMF) (CH-CC (H-O) (Ofi) (TURP (UV)
ODES -Finish (F) Reference (C) Glaze (C) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Ote layers of decorative painting, 1 oct.). Chromochronology Comments (C) Glaze (C) Mallor (C) Mall	f any: (g	Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(HCI) (DMF) (CH-CC (H-O) (OH) (TURF (UV)
ODES -Finish (F) Reference (C) Glaze (C) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Ote layers of decorative painting, 1 oct.). Chromochronology Comments (C) Glaze (C) Mallor (C) Mall	f any: (g	Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(HCI) (DMF) (CH-CC (H-O) (OH) (TURF (UV)
Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) Chromochronology Comments Substrate: Vac & Vac () Julie () The first ()	f any: (g	Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(HCİ) (DMF) (CH-CC (H-O) (Ofi) (TURP (UV)
Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) cote layers of decorative painting, 1 ct.). Chromochronology Comments Substrate: Vice / Vol (S) Julies + S		Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(DMF) (CH ₂ C (H ₂ C) (Of) (Of) (TURP (UV)
Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) ote layers of decorative painting, 1 ct.). Chromochronology Comments Substrate: Viscol No. 5 Shell Comments Shell Co		Methylene Chloride Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co	(CH,C) (H,O) (Off) (TURP (UV)
Shellac (S) Wall paper (W) Fracture () Dirt Laver (-) ct.). Chromochronology Comments Substrate: Week Mary January		Water Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co.	(H ₂ O) (OĦ) (TURF (UV)
Wall paper (W) Fracture () Dirt Laver (-) ote layers of decorative painting, 1 ct.). Chromochronology Comments Substrate: Wash Man () Shall wat + Stallies + Stal		Alcohol Turentine Near UV Light raining, marbleizing, Chromochronology Co.	(OH) (TURF (UV)
ct.). Chromochronology Comments whost rate: who has to be larger at th		Turentine Near UV Light raining, marbleizing, Chromochronology Co	polychro
Dirt Laver (-) ote layers of decorative painting, 1 ct.). Chromochronology Comments substrate: Viscy No. 5 Substrate: Viscy		raining, marbleizing, Chromochronology Co	polychro
Chromochronology Comments ubstrate: West No. 7 Allie + Valle +		raining, marbleizing, Chromochronology Co	
Chromochronology Comments ubstrate: Vice No. 7 Ana. + Ana.		Chromochronology Co	
Chromochronology Comments where the contract of the contract		Chromochronology Co	
Chromochronology Comments Substrate: Visch No. 7 Share + Substrate: Visch No. 7 Share +		Chromochronology Co	
Chromochronology Comments Substrate: Visor No. 7 Share +		Chromochronology Co	
9. Julia W. X + 10. Willow W. X +	17 18 20 20 21 22 22 22 22 22 22		
11. rellar Jahrer	_	·	
12. thick what -	5,	3:	
13. 14. 040	— 2	i:	
15.	3	ó	
•			
Summary:			



	8	
Phase II: Analysis and Reco	mmendations & ('	
Location of Sample	Paris	4 p.,
Date Removed	Kemove	ed By
IN-DEPTH MICROSCOPIC/CHEMIC	CAL ANALYSIS	
Purpose of Phase II Analysi	s #1,2	
No. of Layers to be Studies	1	
Reason for Layer Selection:		
Visual Characteristics of I	_ayer to be Matched: (re	lative thinness, thickness
glassiness, ropiness, ect.	/:	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
0i1	glazy Dmf	Sofrens- duestre
Latex	White Draf	coften
Whitewash/calcimine		
Waterbased/distemper Varnish		
Shellac		
Shellac		
PICMENT ANALYSIS: (Separa necess.) Flourescence under near ul	ary.) traviolet: ves no	. Color
Probable pigment associate	d with flourescence:	
Possible Pigment Type		Reaction Through black
	F7	Jeton 1510
PIGMENT AND MEDIUM TYPE: Probable pigment(s): /FA	of white	
Probable pigment(s): /FA Probable medium: //DA	eest or	
COLOR: (Match sample to co		er UV light for bleaching
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: Report prepared - Date:	By Whom:	

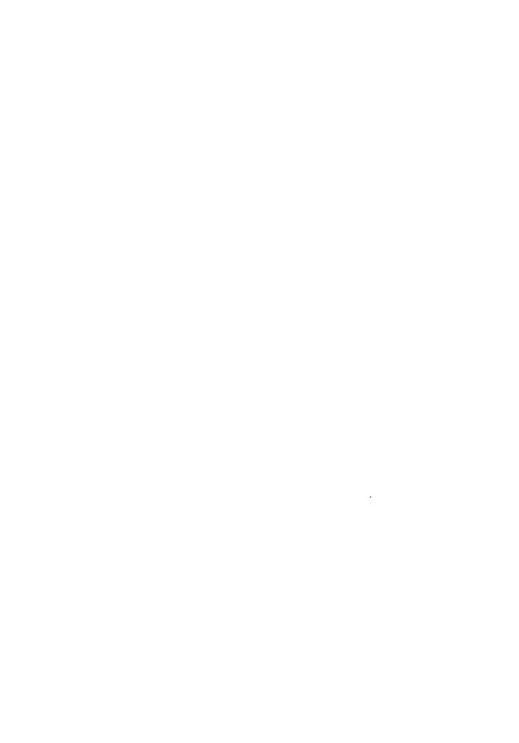


hase I: Sequence of Layers etructure 10.14 man-1 ocation of Sample 10.14 fx ate Removed March 62 eignificant Facts Regarding I o The Analysis (dateconstru	Removed By The Structure's Historicant a	ory Which May Pertain	.ntea)
DATA: Microscopic Analysis			
CODES -Finish (F) Primer (P) Glaze (G) Varnish (Y) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethvlformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(Na_S) (HCI) (DMF) (CH_CL_ (H_O) (OH) (TURP) (UV)
Note layers of decorative pa ect.). Chromochronology Co Substrate: honk 1/27-1	mments		mments
2. It bright 3. him Slight 4. hite 5. white	17. 18. 19.		
6. white sheets 7. Arter 8. White arms V. Thing	21. 22. 22. 23.		
10. 11. Green	25. 26. 27.		
13. 14. 15.	29 30		
Summary:	- has white will	end take	

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Phase II: Analysis and Recom Structure 9-8-P Location of Sample Rull. Date Removed Manual SS		E windon ys him d by mv
IN-DEPTH MICROSCOPIC/CHEMICA	AL ANALYSIS	
Purpose of Phase II Analysis	s (omposition of 1st K	41
No. of Layers to be Studied Reason for Layer Selection: Visual Characteristics of Li glassiness, ropiness, ect.)	aver to be Matched: (rel	ative thinness, thickness
MEDIUM ANALYSIS: (Separate	paint/finishlayer from s	stratigraphy, if necessary.)
Possible medium Oil Latex Whitewash/calcimine Waterbased/distemper Varnish Shellac PIGMENT ANALYSIS: (Separat necesse Flourescence under near ult Probable pigment associated	ary.) traviolet: yesno d with flourescence:	, Color
PIGMENT AND MEDIUM TYPE: Probable pigment(s): 16A Probable medium: 10A	el white	
COLOR: (Match sample to co		der UV light for bleaching
Butens paint color	Sherwin-Wil	lliams
RECOMMENDATIONS		
Color: +it saym	<u> </u>	
Paint Type:	· i	
DOCUMENTATION		
Sample/slide NO: N- N- N- N- N- N- N- N- N- N- N- N- N-	By Whom:	MI



Structure ((,t+,-, Location of Sample Date Removed (M) Significant Facts To The Analysis	Regarding The St	Removed By ructure's His		nted)
DATA: Microscopic	Analyere			
CODES -Finish (Primer (Glaze (Varnish (Shellac (Wall paper Fracture (Dirt Layer	F) P) G) V) S) (W)) ((-)		Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light anning, marbleizing,	(Na_S) (HCI) (DMF) (CH_CL_2 (H_0) (OH) (TURP) (UV)
Chromochr Substrate: Wood 1. Frag. 2. Grata 3. Grata 5. thut gran 6. January 10. gran 11. Array 12. Array 13. Gran 14. Shan 15. thut gran 15. thut gran 16. gran 17. January 18. dan 19. gran 1		16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 29.	Chromochronology Co	mments



ocation of Sample	Pomov	ed By
yare Kemoved	Vemov	ed by
N-DEPTH MICROSCOPIC/CHI	EMICAL ANALYSIS	
C. D	. RI. L / +	,
rurpose of Phase II Ama.	lysis Blue tragelicent =	: /
lo. of Layers to be Stud	gren #2	
Reason for Layer Select:		
isual Characteristics	of Layer to be Matched: (re	lative thinness, thick
gl as siness, ropiness, e	ct.):	
MEDIUM ANALYSIS: (Separa	ate paint/finishlayer from	stratigraphy, if neces
	Too paine, zanzanzo, et zion	
Possible medium	Chemical	Reaction
0il		- varson c
Latex		- IJ
Whitewasn/calcimine		
Waterbased/distempe	er	
Varnish		
Shellac		
PIGMENT ANALYSIS: (Sen	narare naint/finish laver fi	rom stratigraphy if
	parate paint/finish layer fr	rom stratigraphy, if
	parate paint/finish layer freessary.)	rom stratigraphy, if
nec	cessary.)	
nec Flourescence under near	r ultraviolet: yes no	. Color
nec Flourescence under near	cessary.)	. Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno tated with flourescence:	, Color
Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I	r ultraviolet: yesno sated with flourescence: Type Spot Test	, Color
nec Flourescence under near Probable pigment associ	r ultraviolet: yesno sated with flourescence: Type Spot Test	, Color
Possible Pigment Tokan Electrical Probable Pigment Tokan Electrical Pigment Tokan Electrical Pigment AND MEDIUM TYPE	r ultraviolet: yesno tated with flourescence: Type	, Color
Possible Pigment Tokan Electrical Probable Pigment Tokan Electrical Pigment Tokan Electrical Pigment AND MEDIUM TYPE	r ultraviolet: yesno tated with flourescence: Type	, Color
Possible Pigment To Probable Pigment To Possible Pigment(s): Probable pigment(s):	rultraviolet: yesno tated with flourescence: Type	Reaction Page throis Area throis Con Store
Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Possible Pigment I Probable pigment(s): Probable medium: COLOR: (Match sample to	r ultraviolet: yesno tated with flourescence: Type	Reaction Page throis Area throis Con Store
Possible Pigment To Probable Pigment To Possible Pigment(s): Probable pigment(s):	r ultraviolet: yesno tated with flourescence: Type	Reaction Page throis Area throis Con Store
Possible Pigment To Probable pigment To Probable Pigment To Probable Pigment To Probable pigment AND MEDIUM TYPE Probable pigment(s): Probable medium: COLOR: (Match sample to purposes if app	r ultraviolet: yes no stated with flourescence: Type Spot Test E: co color standards; place un proprate.)	Reaction PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM FORM PART TWO ATTEMNATION FORM F
Possible Pigment To Probable pigment To Probable Pigment To Probable Pigment To Probable pigment AND MEDIUM TYPE Probable pigment(s): Probable medium: COLOR: (Match sample to purposes if app	r ultraviolet: yesno tated with flourescence: Type	Reaction PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM PART TWO ATTEMNATION FORM FORM PART TWO ATTEMNATION FORM F
Possible Pigment associ Possible Pigment T Possible Pigment T Possible Pigment T Probable Pigment T Probable Pigment T Probable Pigment(s): Probable medium: COLOR: (Match sample to purposes if app	r ultraviolet: yes no stated with flourescence: Type Spot Test E: co color standards; place un proprate.)	Reaction PART TWO STEEN THEN STEEN THEN COLOR THEN
Possible Pigment associ Possible Pigment T Possible Pigment T Possible Pigment T Probable Pigment T Probable Pigment T Probable Pigment(s): Probable medium: COLOR: (Match sample to purposes if app	r ultraviolet: yes no stated with flourescence: Type Spot Test E: co color standards; place un proprate.)	Reaction PART TWO STEEN THEN STEEN THEN COLOR THEN
Probable pigment associ Possible Pigment T Possible Pigment T Possible Pigment T Probable Pigment T Probable pigment T Probable pigment T Probable pigment (s): Probable pigment and medium: COLOR: (Match sample to purposes if app Butens paint color RECOMMENDATIONS	E:	Reaction Pager throni grays th
Possible Pigment associ Possible Pigment The Possible Pigment The Possible Pigment The Possible Pigment The Province Pigment AND MEDIUM TYPE Probable pigment AND MEDIUM TYPE Probable pigment and medium: COLOR: (Match sample to purposes if app Butens paint color RECOMMENDATIONS	r ultraviolet: yes no stated with flourescence: Type Spot Test E: co color standards; place un proprate.)	Reaction Pager throni grays th
Possible Pigment Tolking William William William William William William William Probable pigment Type Probable pigment (s): Probable medium: COLOR: (Match sample to purposes if appropriate pourposes of appropriate pourpose) Butens paint color RECOMMENDATIONS Color: Paint Type:	E:	Reaction Pager throni grays th
Possible Pigment associ Possible Pigment T Possible Pigment T Possible Pigment T Possible Pigment T Possible Pigment T Possible Pigment T Possible Pigment T Possible Pigment T Probable pigment(s): Probable pigment(s): Probable pigment(s): Probable pigment(s): Probable pigment T Possible Possible Pigment T Possible Possible Pigment T Possible Pigment P Possible Pigment P Possible Pigment P Possible Pigment P Possible Pigment P Possible P Possible P Possible P Possible P Possible P Possible P Possible P Possible P Possible P Possible P Possi	E:	Reaction Reaction PART THEN AND THEN FOR > FLO der UV light for bleac



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lilcant facts kegard	ing the structure s a	istory which may rerta	in the
		t alterations, dates p	
·			
. M: 41			
: Microscopic Analys	115		
S -Finish (F)	Reaction	of Sodium Sulfide	(Na ₂ S
Primer (P)	Reaction	Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)			
		Methylene Chloride	
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(BO)
Fracture ()		Turentine	(TURI
Dirt Layer (-)		Near UV Light	(UV)
e layers of decoration.).	ve painting, if anv:	(graining, marbleizing	, polychr
Chromochronolog	y Communents	Chromochronology	Comments
Chromochronolog	y Comments	Chromochronology	Comments
Chromochronolog	y Comments	Chromochronology	Comments
Chromochronolog	y Comments	Chromochronology	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 2-2.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 2-2.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 24.	Comments
Chromochronolog strate:	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 2- 2- 25. 26. 27.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Comments
Chromochronolog strate:	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 29. 29.	Comments
Chromochronolog	y Comments	Chromochronology 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Comments



Location of SampleDate Removed	Removed	Ву
IN-DEPTH MICROSCOPIC/CHEMICAL		
IN BEI III MICKOSCOI IC/ CHEMICAL	, MINELOLD	
Purpose of Phase II Analysis_		
No. of Layers to be Studied_	1 2 7.	
Reason for Layer Selection:		
Visual Characteristics of Lay glassiness, ropiness, ect.):	er to be Matched: (rela	tive thinness, thickness
glassiness, topiness, ect.).		
MEDIUM ANALYSIS: (Separate pa		
Possible medium	Chemical	Reaction
Latex		
	1	-
Waterbased/distemper Varmish		
Shellac		
3.02100		
Flourescence under near ultr	/	0.1
Probable pigment associated	with flourescence:	Color
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type	Spot Test	Reaction
Probable pigment associated Possible Pigment Type Probable Pigment Type PIGMENT AND MEDIUM TYPE: Probable pigment(s):	Spot Test Spot Test	Reaction
Probable pigment associated Possible Pigment Type Pigment AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to cold	Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test	Reaction
Probable pigment associated Possible Pigment Type Pigment AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to color purposes if appropriate appropriate in the color purposes if appropriate in the color purposes in t	Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test Spot Test	Reaction
Probable pigment associated Possible Pigment Type Pigment AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to color purposes if appropriate probable propriate probable medium) Butens paint color RECOMMENDATIONS	Spot Test Spot Test The standards: place under the standards: Sherwin-Will	Reaction
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AT A: Microscopic Analysi	s			
ODES -Finish (F)	Reaction	of	Sodium Sulfide	(Na ₂ S
Primer (P)			Hydrochloric Acid	
			Dimethylformamide	
Glaze (G) Varnish (V)			Methylene Chloride	
Shellac (S)			Water	(H ₂ 0)
Wall paper (W)			Alcohol	(OH)
Fracture ()			Turentine	(TURI
Dirt Layer (-)			Near UV Light	
Dire Layer (-)			Hear of Eight	(0.7
ote layers of decorative	painting, if any:	(gr	aining, marbleizing,	, polychr
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N-DEPTH MICROSCOPIC/CHEMICAL	L ANALISIS	
Purpose of Phase II Analysis		
o. of Layers to be Studied_	7-1 2 1	
Reason for Laver Selection:		
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glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from s	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil		
Latex		
Whitewasn/calcimine	H.L	
Waterbased/distemper		
Varnish Shellac		
Silettue		
PICMENT ANALYSIS: (Separate		
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ES -Finish (F)		Reaction of	Sodium Sulfide	(Na ₂ S
Primer (P)			Hydrochloric Acid	(HC1)
Glaze (G)	7		Dimethvlformamide	(DMF)
Varnish (V)			Methvlene Chloride	
Shellac (S)			Water	(H,0)
Wall paper (W)			Alcohol	(PH)
Fracture ()			Turentine	(TURI
Dirt Laver (-)			Near UV Light	(UV)
	ve painting,	if any: (gr	aining, marbleizin	g, polychro
e layers of decorati			Chromochronology	
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Possible medium	Chemical	Reaction
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ATA: Microscopic	Analysis						
ODES -Finish (F	:)	Posesson	ı f	Sodium Sulfi	da		(Na a
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Glaze (G				Dimetnylform			(DMF
Varnish (V				Methylene Ch			(CH,
Shellac (S				Water	11011	ue	(H ₂ 0
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Chromochro Substrate: wook	onology Commen	cs	6.	Chromochrone White bout wh	logy Wass	Comme	ents
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Phase II: Analysis and Recom	mendations \~	
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No. of Layers to be Studied		
Reason for Laver Selection:		
Visual Characteristics of La	yer to be Matched: (rel	ative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate p	paint/finishlayer from s	stratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	Dm€	7
Latex		
Whitewash/calcimine		
Waterbased/distemper		
Varnish		
Shellac		
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PIGMENT ANALYSIS: (Separate		om stratigraphy, if
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Flourescence under near ult	raviolet: ves / no	Color Wills and
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PIGMENT AND MEDIUM TYPE:		
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Probable pigment(s): Zing Probable medium: linge	- o'k lega	
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RECOMMENDATIONS		
Color:		
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ATA: Microscopic Analysis				
ODES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Layer (-)	Reaction	of	Sodium Sulfide Hydrochloric Acid Dimethylformamade Methylene Chloride Water Alcohol Turentine Near UV Light	(Na_S) (HCI) (DMF) (CH_CI (H_O) (OH) (TURP (UV)
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lote layers of decorative parts.	ainting, if any:	(gr	aining marbleizing,	polychro
Chromochronology C Substrate: 1. White area; 2. C. Hody 3. dark blue 4. White area; 5. Willow my m. Na. S 6. Willow my m. Na. S 6. Willow my m. Na. S 8. Inna 4 Min. 9. White life Na. 10. Hot hoe has 11. Willow my m. Na. S 12. Willow my m. M. 14. Willow my m. M. 15. Diagram.	HC1 LHcU1	16. 17. 18 19 20 21 22 23 24 25 26 27 28	Chromochronology Co	
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Substrate: Think gray Think	HC1 LHcU1	16. 17. 18 19 20 21 22 23 24 25 26 27 28		



Phase II: Analysis and Recomm Structure		
Location of Sample		
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IN-DEPTH MICROSCOPIC/CHEMICAL		
Purpose of Phase II Analysis_		
No. of Lavers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of Lay	yer to be Matched: (relativ	re thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate pa	aint/finichlayer from strat	rigraphy, if necessary.)
The state of the s	or a contract of the contract	
Possible medium	Chemical	Reaction
011		
Latex		
Whitewasn/calcimine		
Waterbased/distemper Varnish		
Shellac		
Sherrac .		
PIGMENT ANALYSIS: (Separate necessar Flourescence under near ultr	y.)	
Probable pigment associated	with flourescence:	
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rossible rigment Type	Spot lest	+ 40/10-1-10-1
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760000000000000000000000000000000000000	7.10.45 3.11.361	7
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Possible Pigment Type Lace Lace Lace Abelt 56/15~ PIGMENT AND MEDIUM TYPE: No	o positive Martin w/any o	et the white problems
Probable pigment(s):		
Probable measum: 34/ 2	~ /47+2	
COLOR: (Match sample to color purposes if appropra	or standards; place under l	
Butens paint color	Sherwin-William	ıs
RECOMMENDATIONS		
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The Analysis (dateconstructed, 513)	nilicant alterations, dates painted
ATA: Microscopic Analysis	
ODES -Finish F) 3e	action of Sodium Sulfide (N
Primer P)	Hydrochloric Acid H
Glaze G) . 15' /T'	Dimethylformamide D
Varnish (V)	Methylene Chloride C
Shellac (S)	*ater (H.
Wall paper (₩)	Alcohol (O)
Fracture (Turentine (T
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MEDIUM ANALYSIS: (Separate pa		
Possible mealum	Chemical	Reaction
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Shellac		
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necessar: Flourescence under near ultr. Probable pigment associated of Possible Pigment Type	y.) aviolet: yesno, with flourescence: Spot Test	ColorReaction
PIGMENT AND MEDIUM TYPE:	y.) aviolet: yesno, with flourescence: Spot Test	ColorReaction
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	y.) aviolet: yesno, with flourescence: Spot Test	ColorReaction
necessar: Flourescence under near ultr. Probable pigment associated of the possible Pigment Type PICMENT AND MEDIUM TYPE: Probable pigment(s): Probable meaium:	y.) aviolet: yesno, with flourescence: Spot Test	ColorReaction
PIOMENT AND MEDIUM TYPE: Probable pigment(s): Probable pigment(s): Probable meaium:	y.) aviolet: yesno, with flourescence: Spot Test	ColorReaction
necessar: Flourescence under near ultr. Probable pigment associated of the possible Pigment Type PICMENT AND MEDIUM TYPE: Probable pigment(s): Probable meaium:	y.) aviolet: yesno, with flourescence: Spot Test or standards; place unde	ColorReaction
PICMENT AND MEDIUM TYPE: Probable pigment(s): Probable pigment(s): Probable medium: COLOR: (Match sample to colopurposes if appropra	aviolet: yesno, with flourescence: Spot Test	Reaction Reaction
PICMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to colo	aviolet: yesno, with flourescence: Spot Test	Reaction Reaction
PICMENT AND MEDIUM TYPE: Probable pigment(s): Probable pigment(s): Probable medium: COLOR: (Match sample to colopurposes if appropra	y.) aviolet: yesno, with flourescence: Spot Test or standards; place unde	Reaction Reaction
PIGMENT AND MEDIUM TYPE: Probable pigment (s): Probable pigment(s): Probable meaium: COLOR: (Match sample to colopurposes it appropra	y,) aviolet: yesno, with flourescence: Spot Test or standards; place unde	Reaction Reaction
Plowrescence under near ultr. Probable pigment associated of Possible Pigment Type Plowrescence under near ultr. Probable Pigment Type: Probable pigment(s): Probable meaium: COLOR: (Match sample to colopurposes if appropra Butens paint color RECONMENDATIONS Color:	y.) aviolet: yesno, with flourescence: Spot Test or standards; place unde	Reaction Reaction
PIGMENT AND MEDIUM TYPE: Probable pigment (s): Probable pigment(s): Probable meaium: COLOR: (Match sample to colopurposes it appropra	y.) aviolet: yesno, with flourescence: Spot Test or standards; place unde	Reaction Reaction
PIOMENT AND MEDIUM TYPE: Probable pigment associated of the probable pigment Type PIOMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to colopurposes if appropra Butens paint color RECONMENDATIONS Color:	y.) aviolet: yesno, with flourescence: Spot Test or standards; place unde	Reaction Reaction T UV light for bleaching

Date Removed March Significant Facts Regarding The St To The Analysis (dateconstructed,	significant a	alterations, dates pai	inte
DATA: Microscopic Analysis			
CODES -Finish (F)	Reaction of	Sodium Sulfide	. (
Primer (P)		Hydrochloric Acid	(
Glaze (G)		Dimethylformamide	-
Varnish (V)		Methylene Chloride	
Shellac (S)		Water Alcohol	
Wall paper (W) Fracture ()		Turentine	
Dirt Laver (-)		Near UV Light	
Bill Bill ()			
Note layers of decorative painting	g, if any: (gr	raining, marbleizing,	pol
Note layers of decorative painting ect.).	g, if any: (gr	raining, marbleizing,	pol
	g, if any: (gr	raining, marbleizing,	pol
ect.)Chromochronology Comment	s .	Chromochronology Co	==
ect.)	s ,	Chromochronology Co	mme
Chromochronology Comment Substrate: Plant: Nasc	s .	Chromochronology Co	mme
Chromochronology Comment Substrate: Plants A25	s .	Chromochronology Co	me
Chromochronology Comment Substrate: Plants: Ang. 1	s . 	Chromochronology Co	ome
Chromochronology Comment Substrate: Plant: Nas5 1. Value 3. yellowate and agree slight 4. transported and agree slight	s	Chromochronology Co	omme
Chromochronology Comment Substrate: Post: Nass 1. Substrate: Post: Nass 3. Francourse transactor Sticky 5. Transported transactor Sticky 5. Transported transactor Sticky	16. 17. 18. 19.	Chromochronology Co	omme
Chromochronology Comment Substrate: Plants: And Substrate: Plants: And Substrate: And Substrate: Substrate: And Andrew Shight Substrate: And Andrew Shight Substrate: And Andrew Shight Substrate: And Andrew Shight Substrate: And Andrew Shight Substrate: Andrew Shight Subs	16. 17. 18 19 20 21	Chromochronology Co	omme
Chromochronology Comment Substrate: Plant: Mass Julia and an arth Slight Antique of the part of the state The substrate of the state Antique of the state The substrate of the state of the state The substrate of the state 16. 17. 18 19 20 20 21	Chromochronology Co	omme	
Chromochronology Comment Substrate: Plants 1.	16. 17. 18 19 20 21 22 23 23	Chromochronology Co	omme
Chromochronology Comment Substrate: Plants: And State 1. Comment 3. William to a page State 4. transparent fra page State 5. white 7. white 8. comment 9.	16 17 18 19 20 20 21 22 23 24 25	Chromochronology Co	ome
Chromochronology Comment Substrate: Plants And Street yulla white Amangaret fra arth Street has present fra arth Street has present fra arth Street that arthur fra arthur Street that arthur fra arthur Street that arthur fra arthur Street 10. 11.	16 17 18 19 20 21 22 23 24 25 26	Chromochronology Co	mme
Chromochronology Comment Substrate: Plant: Nass yello and the street of the street o	16. 17. 188 19 20 21 22 23 24 25 26 27	Chromochronology Co	omme
Chromochronology Comment Substrate: Plants The substrate are again the substrate are again to substrate are again to substrate are again to substrate are against the substrate against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are	16. 17. 18 19 20 20 21 22 23 24 25 26 27 28	Chromochronology Co	omme
Chromochronology Comment Substrate: Plants Ans The Substrate State The	16 17 18 19 20 21 22 23 24 25 26 27 28 29 29	Chromochronology Co	omme
Chromochronology Comment Substrate: Plants The substrate are again the substrate are again to substrate are again to substrate are again to substrate are against the substrate against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are against the substrate against the substrate are against the substrate are against the substrate are against the substrate are against the substrate are	16 17 18 19 20 21 22 23 24 25 26 27 28 29 29	Chromochronology Co	omme

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Phase II: Analysis and Recomme Structure		
Location of Sample		
Date Removed	Removed Bv	
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis		
No. of Layers to be Studied Reason for Layer Selection: Visual Characteristics of Laye glassiness, ropiness, ect.):	r to be Matched: (relative	thinness, thickness
MEDIUM ANALYSIS: (Separate par	nt/finishlaver from stratio	raphy, if necessary.)
Possible medium Oil Latex Whitewasn/calcimine Waterbased/distemper	Chemical DMF	Reaction
Varnish Shellac		
PIGMENT ANALYSIS: (Separate necessary. Flourescence under near ultra	.) violet: yes no ✓ , Colo	r
Probable pigment associated w	ith flourescence:	
Possible Pigment Type	Spot Test	Reaction
Uther public isnow, or	- TI+ parec	
- no reaction for three		
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Probable medium:		
COLOR: (Match sample to color purposes if approprat	e.)	
Butens paint color camule 1	3+5 4(W) Sherwin-Williams	
RECOMMENDATIONS	yellowed nextine	
Color:		
Paint Type:		
DOCUMENTATION		
Sample/slide NO: Report prepared - Date:	Bv Whom:	

	•	

Phase I: Sequence of Layers of itructure 20 6 (City Langue) ocation of Sample Interior Shape Removed March 525 ignificant Facts Regarding To The Analysis (dateconstructure)	Removed By The Structure's Histocted, significant a	lterations, dates pair	nted)
DATA: Microscopic Analysis			
CODES -Finish (F) Primer (P) Glaze (C) Varnish (V) Shellac (S) Wall paper (W) Fracture () Dirt Laver (-)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	
Note layers of decorative pa	inting, if any: (gr	aining, marbleizing,	polychrom
Chromochronology Co Substrate: Plaster Mars 1. Thick white 3. Thick 5. Thick 6. 7. 88. 9. 10. 11. 12. 13. 14. 15.	UNO2 16.	Chromochronology Cos	

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Structure	2	
Location of Sample		
Date Removed	Removed	By
IN-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
Purpose of Phase II Analysis	to see it white wail	
No. of Layers to be Studied_	2//	
Reason for Laver Selection:		
Visual Characteristics of La	yer to be Matched: (rela	ative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate p	paint/finishlayer from s	tratigraphy, if necessary.)
Possible medium	Chemical	Reaction
Oil	0	Reaction
Latex		
Whitewash/calcimine	HCI	न
Waterbased/distemper		
Varmish		
Shellac		
necessar Flourescence under near ultr Probable pigment associated	raviolet: yes no 🖳	Color
Poasible Pigment Type	Spot Test	Reaction
lead	Naz S	
- Whiting		tormation of gas
	H2501	
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): Probable medium:		
COLOR: (Match sample to col purposes if appropr		er UV light for bleaching
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS	·	
		·- · · · · · · · · · · · · · · · · · ·
Paint Type:		
DOCUMENTATION		
C1-/-1-4- NO.		
Report prepared - Date:	By Whom:	





ex. 21 (continued)

NameSample No	1- Ri-m
DateOrigin of s	ample Rittenhouse
ساباد (هم Visual description of sample (color, inclusions, etc.): <u>ساباد سار مراسد</u>	rysholco texture, hardness,
Lack Solvet point (8)	
accompl	
- · · ·	
Mortar Analysis :	
Original weight of powdered sample (W ₁) =	(9.78
Weight of filter paper (W ₂) =	.5 <u>2 + ,53 +5</u> 83=681
Weight of filter paper + dry fines (W_3) =	<u> </u>
Weight of dry fines $(W_3 - W_2) =$	1189-6-
Weight of dry sand $(W_4) =$	3.55%
% of sand $((W_4/W_1) \times 100) =$	17,7690
% of fines $((W_3 - W_2)/W_1 \times 100) =$	9.45%
♦ of dissolved binder =	ورُ عرد حرد
Observations: dissolution of binder, color	
Characterization of Sand:	7.75



* Finer	than	4.75	mm
		2.36	mm F 3-11 6.15
		1.18	mm - 1 = - 24.15
		600	um _/ 32 55
		300	um
		150	um 6 - ?. ***
		75	um 1.7098
		53	um
		38	um
		2	.53

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den ken

ex. 21 (continued)

MORTAR ANALYSIS: DATA SHEET SUCCE.					
NameSample No. 2-R:-m					
Origin of sample 206 R Hrohouse Introduct flaster from in form about manager Visual description of sample (color, texture, hardness,					
inclusions, etc.): White w/ Fiber ven sm. aggrague					
Tron fragment					
Mortar Analysis :					
Original weight of powdered sample (W_1) = 25.06					
Weight of filter paper (W ₂) = <u>5.771,56 =6.33</u>					
Weight of filter paper + dry fines $(W_3) = \frac{7.72 \varphi}{}$					
Weight of dry fines $(W_3 - W_2) = \frac{1.365}{1.365}$					
Weight of dry sand $(W_4) = 6.80$					
* of sand ((W ₄ /W ₁) x 100) = 67.03%					
* of fines $((W_3 - W_2)/W_1 \times 100) = \frac{5.57\%}{2}$					
t of dissolved binder =					
Observations: dissolution of binder, color of liquid:					
Line Gira Color					
Characterization of Sand:					
Microscopic Examination Finer than 4.75 mm					
2.36 mm <u>(3.77)</u> 1.18 mm <u>(3.77)</u>					
600 um <u>3.7.1</u> 16.1.5.2 300 um <u>- 9.7.1</u> 55.3					
150 um <u>2.74</u> (22.3×2) 75 um <u>2.3 (2.3×2)</u>					
53 um					
- R. J.					
1 1					



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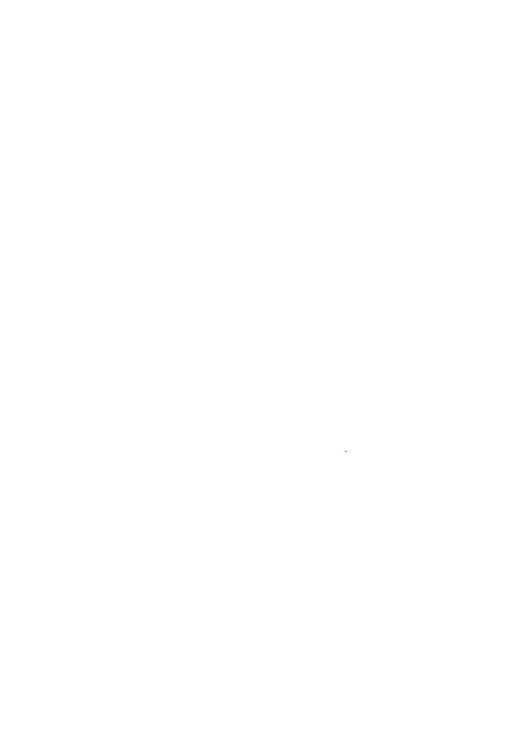
ex. 21 (continued)

MORTAR ANALYS	IS: DATA SHEET	206 Rittenhouse
Name	Sample No	3-Ri-m
Date	Origin of sa	mple 200 Aittenhouse
Visual description of samplinclusions. etc.): Very soft	e (color.	texture, hardness.
Ivon wagener		
Liquid D	المراجعة	
Mortar Analysis :		
Original weight of powdered sam	ple (W _l) =	25.02
Weight of filter paper (W2) =		5.91 + 1566 47 p.
Weight of filter paper + dry fi	nes (W ₃) =	4.20 ch
Weight of dry fines $(W_3 - W_2) =$	ı	1.73 cm
Weight of dry sand (W ₄) =		16.37
% of sand $((W_4/W_1) \times 100) =$		1,5,4290
% of fines ((W ₃ - W ₂)/W ₁ x 100)) =	1.913
% of dissolved binder =		27.67 72
Observations: dissolution of b	inder, color o	E liquid:
Characterization of Sand:		16.37
	% Finer tha	ap 4 75 mm
Microscopic Examination	* Finer the	2.36 mm 1.18 mm 2.30 1.30 um 2.27 1.30 um 2.27 1.50 um 2.75 1.50 um 2.75 2.51 2.52 2.53 2.55
		11:16 = 15:17

	,	

ex. 21 (continued)

MORTAR ANALY	SIS: DATA SHEET			
Name	Sample No	-Ri - m		
Date	Origin of sam	ole Rittenhouse 206		
Visual description of samp inclusions, etc.): Hard III	Uhile Agrant de	xture, hardness,		
No Limichunks				
Mortar Analysis :		Pag (
Original weight of powdered sa	mple (W ₁) =	25.05		
Weight of filter paper (W_2) =	-	5.89+ .55 = 6.44		
Weight of filter paper + dry f	ines (W ₃) =	8.14		
Weight of dry sand (W ₄) =	1, 5 M	16.084		
% of sand ((W4/W1) x 100) =		64,19%		
* of fines ((W ₃ - W ₂)/W ₁ x 10	00) =	6.78%		
% of dissolved binder =		75-9 29.03%		
Observations: dissolution of b	oinder, color of	liquid:		
	Yellow high	\ek		
-		16.08		
Characterization of Sand:		15.52		
Microscopic Examination	% Finer than	-		
		1.18 mm		
		300 um 537 35		
		75 um 160137		
		53 um		



<u>dependin #24</u>

Rockland Chain of Title

Form the Title Registry or the Department or Records.

Philadelphia City Hall. Philadelphia. Pennsylvania.

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Chain of Title for eachland

Nov. IS. 1637 Recited in Fatent warrant of Survey from the Court of Upland to william Orion for 100 Aires.

Feb. 9. 1680 Recited in Faterit

> Surveyed to william Orion. 1 / acres. Second lat of isho also included in the patert containing of acres.

From william Onion Recomped: Feb. 1. To Dennie Abtohvord 1997-4 1 Decree Door: A.po. 11 Feb. 14. 1682

Feb. 1 . 1e82 From William Orion Recored: Feb. 18. To Dennis Rotchtoro 1693-4 Deed Book: A og.51 ou acres

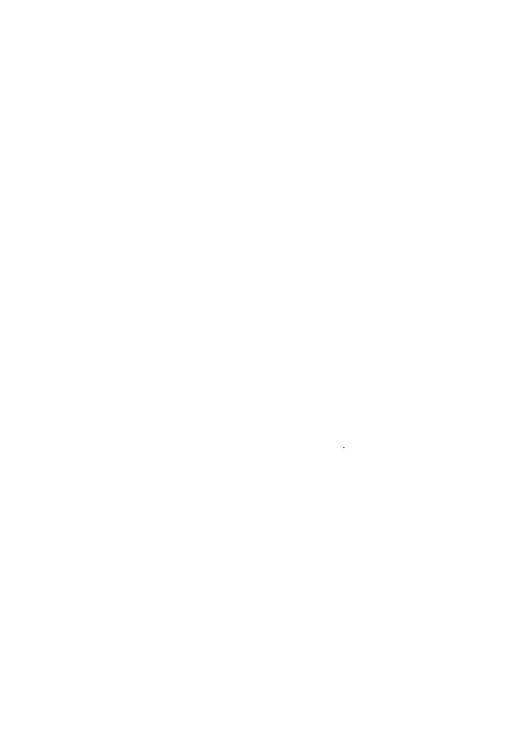
March 1. 1897-4

Feb. 1c. 1c93-4 Record Book: F No. e. pg. S1. S2.

Fatent: William Fenn by his commissioners To Mary Rotchtoro widow of Dennis Rotchtord and his administration for the above 100 acres and 60 acres and also another 40 acres alouning the former of liberty land laid out 20th of ist, month 18e3 to a warrant from the proprietary dated the same day unto Denris Actor-ord to beholder as by the Manor of Spinngetsbury

From Mary Astoniory To Thomas Elocs Peconoed:311. 200 acres 11. 1074 Land Office of Pennsylvania Fecord Book: 1 Sept. 11. 1707 Aslease: Heriot Actonford Recorded: Howest 17. 1707 To Thomas Shoce Deed Book: E.I val.a. pg. 243 Aug. 4. 1745 will or Thomas Shute Froved: Lec. 10. 1748 To his son Joseph Shute Will Book: I

pq. 5



	From Edward wanner et. all Trustees of Thomas Shute Joseph Shute ald not pay Pow pounds corrency rents. To Abel James 194 acres	I. 17eu Deed Book: h
June 17. 1756	Prom Abel James To Joseph Shute 100 acres	Recorded: Feb. 25. 1760 Deed Book: H No.10.pg.176
July 22. 175:	From Joseph Shote To John Lawrence La Hones Dart no the original 1.0 agnes	Recorded: June 20. 1777 Deed abov: 1 vs.17.20.89
104V 24. 1755	From John Lawrence To John McEnerson To Akines	Recomped: Dec. 1769 Deed Book: 1 Vol.a.py.514
	Mortgage John NcEmerson To Thomas Mason on the La acres the payment of 421 pounds	Recorded: Hug. 10, 1776 Mortgage Book:) No.10.pg.82 with interest

In 1800 the property is in dispute between Mary Ann McFherson Administrator of John NcFherson's Estate. As, John Mason Thomas Raul Elecutors of Thomas Mason Daceased. Awarded to John Mason and Thomas Raul:

March e. 13.5	Swed How. John Selver: High Silen. th Johnston Headh and Johnston How	Aubreme Count Soo: J.pg.,44
	Hwarded the Is acres.	
'ev 1, 15 5	From John Mason and Thomas Faul	Fecomped:June Co.16V7 Deed Book: IC
	To George Thomas Is acres	No.1.pg.lo⇒
Sept 11, 1115	Prom George Thomas To Isaac C Jones	Seconded: Oct. 12. 1315
	Seid IS Dollars	Deed Book: MR No.4.pg.745

Centain Massuage of Teniment and tract or piece of Land...Containing Lo acres. This is the first time the bullding



is mentioned.

Oat 22. 1828 Mortgage

To Issac Jones From Thomas Firth

Satisfied December 27, 1874

Recorde Oct. 25. 1828 Mortgage Book: GWR.No.11.pg.640

Nov. 7. 1828 Deed o⊤ Trust

From Isaac C Jones To John Carpenter and Thomas Firth

GWR. No. 15, pq. 198

jan. 1 . 1834 Deed Endonsed:

Prom Inomes Prito To isaac C Jones

Sept. II. 1865 Will of Isaac C. Jones

Fecorded: Jan.

Recorded: Nov.

11, 1825 Deed Book:

35. 1835 Deed Book: AM. 1,5,4,69,478

Will Book: 59.pg.398

Appointed both Samuel Jones and Isaac Jones his e ecutors and stated that that should sail all or part of his real estate.

From 1867 on the city of finitagelphia was in the process of buying this land from leadt Jones E. ecutor of Isaac C. Jones Estate.

March 19, 187. Deed Fall Release Isaac Jones E equitor on Isaac C. Jones estate to the C.t. or Philadelphia.

> Deed Book: · · · Py·

From: H Brief of Title to Pockland containing 25 acres. Estate of Issac C. Jones. Fairmount Park Commission files. Bo A-Jood. City Anchives. City Hell Annel. Philedelchis Fe.



Nependia #25
Inventory of Issac Junes
From the will or Tasac Junes #52. 1865. Register or Hills.
City Hall Hones. Philadelphia Pa.

Inventory of Issac Jones Dobble Bedstead and Bedding15.00 | 10.00 | Table with Drawers | 3.00 | Chairs ight Stove and Front | 4.00 | Chair Office of Worn Matting and Sundrys | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | Chairs | 3.00 | C Looking Glass 2.00 1.50 Sheet Iron Stove Wash Table 2.00 Chamber Set Carpet 5.00 Single Bedstead and Bedding15.00 Case of Drawers 5 Chairs Wash Stand Bureau Table Stand 1.00 Chamber Chair Small Looking Glass Carpet 5.00 Chest of Drawers15.00 Single Bedstead and Bedding12.0020.00 Subtotal 220.50 Looking Glass Table With Drawers Candle Stand Table 6 Yellow Chairs Carpet 2 Large Bureaus 7 Hair Seat Chairs1.50 each...10.50 Rocking Chair, Large , Small 2.00 Wash Stand and Furniture 5.00 Cain Seated Chair Cain Backed Chair Bedstead and Bedding Dressing Table with Glass10.00 Large Wardrobe20.00 Small Bedstead and Bedding 1 Stove 5.00 1 Card Table 5.00 1 Carpet

.....20.00



Z Looking Glasses	B.UU
2 Bureaus	
* Plain	5.00
Wash Stand	5.00
1 Set Chamber Ware, Pitcher	
2 Looking Glasses	3.50 each 7.00
1 bedstead and Bedding	
4 Cane Seated Chairs	
1 Small Hinge Table	
Carpet	5.00
Entry Carpet	
Entry Table	
Side Board	5.00
Mahogany Table	
managany rabie	
	4.00
· ·	3.00
	Subtotal 488.50
Fire Screen	
Small Table and Dressing Ca	se 1.00
8 Rush Seated Chairs	2.00
Looking Glass	5.00
Carpet	5.00
Clock	4.00
Looking Glass	5.00
4 Rattan Seat Chairs	
2 Rush Seat Chairs	
Round Table	
Desk Book Case	5.00
1 Lot of Books	
1 Looking Glass	
6 Hair Seated Chairs	
	7
2 Rush Bottom Chairs	1.00
1 arm Chair	
1 Set Tea (Poy ?)	5.00
Center Table	
2 Stools	
Screen	
Card Table	4.00
Carpet (Brussil)	20.00
	7)20.00
B Hair Seated Chairs	1.50 each12.00
Z KUSII	
Hair Seated arm Chair	
 Rocking Chair 	
Looking Glass	
Stove Air Tight	
	tools 4.00
Sofa	5.00
1 Pair China Stools	2.00
Pair Mantle Vases	4.00
Counting House Desk and St	001
Entry and Stair Carpet	8.00



Entry Hat Rack			
Mohogany Table Small 1.00 Umbrella Stand 25 Clock 2.00 Kitchen Table, Chain and with Kitchen Utensills 10.00 1 set China Crokery and Glass 10.00 1 Lot SilverHare (Old) 210 oz. at 1.25 per oz. 262.50 Gold Watch, and Chain 60.00 Pier TAble Marble Top (Parlour) 4.00 Roan Hourse 175.00 -Rockland Place 1264.50 1 8ay Horse 100.00 1 Dun Horse 125.00 Market Wagon and Cart 100.00 Lot of Agricultural Impliments 15.00 Red Cow (Dry) Mhite Cow 35.00 Lot of Old Furniture 30.00 Cash 435.00 A35.08 1 Lot East India China 30.00	Entry Hat Rack		1.50
Umbrella Stand			
Clock Kitchen Table, Chain and with Kitchen Utensills	Mohogany Table Small		
Kitchen Table, Chain and with Kitchen Utensills10.00 1 set China Crokerv and Glass	Umbrella Stand		
1 Set China Crokery and Glass	Clock		2.00
1 Set China Crokery and Glass	Kitchen Table, Chain and	with Kitchen Utensills	10.00
1 Lot SilverHare (0ld) 210 oz. at 1.25 per oz. 262.50 Gold Match,and Chain			
Gold Watch,and Chain			
Pier TAble Marble Top (Parlour)			
175.00 175.00 35.00			
Single Carriage25.00, and Harness10.0035.00 -Rockland Place 1264.50 1264.50 1264.50 1264.50 125.00 125			
-Rockland Place- 1264.50 1 8ay Horse 100.00 1 Dun Horse 125.00 Market Hagon and Cart 100.00 Lot of Agricultural Impliments 15.00 Red Cow (Dry) 30.00 Hoite Cow 35.00 Lot of Old Furniture 30.00 Cash 435.00 2053.38 1 Lot East India China 30.00			
1 8ay Horse 100.00 1 Dun Horse 125.00 Market Hagon and Cart 100.00 Lot of Agricultural Impliments 15.00 Red Cow (Dry) 30.00 White Cow 35.00 Lot of Old Furniture 30.00 Cash 435.00 2053.38 1 Lot East India China 30.00	ornare contragential		
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Philadelphia: July 17, 1865 Completed 8y James Willson and Isaac L. Wister.

Will of Issac Jones ♦52, 1865. Register of Wills. City Hall Annex, Philadelphia Pa.



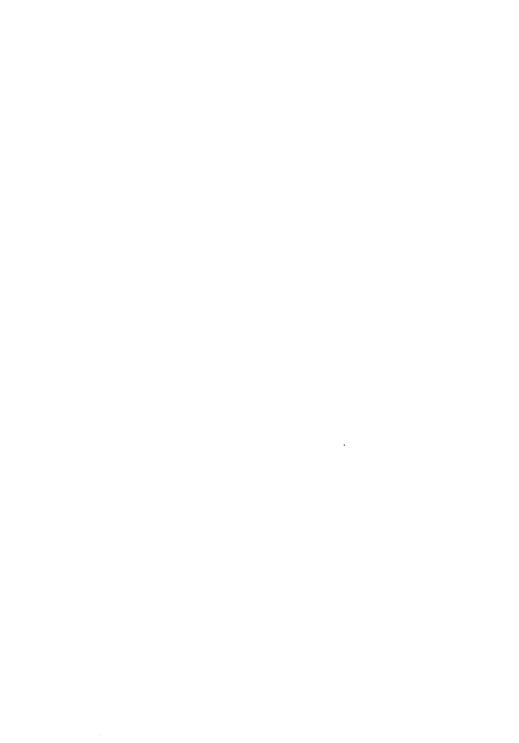
<u>Appendis #26</u> Rockland Floor Flans

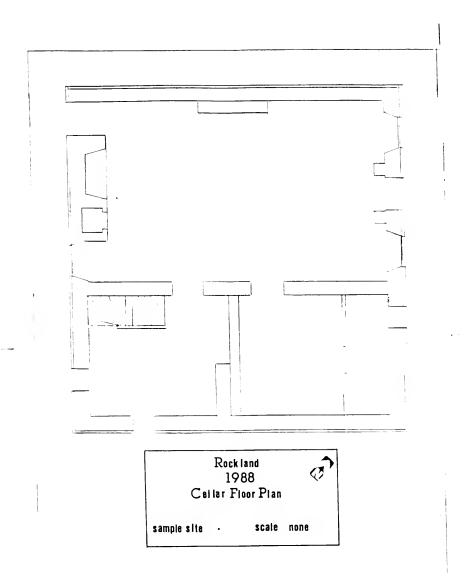
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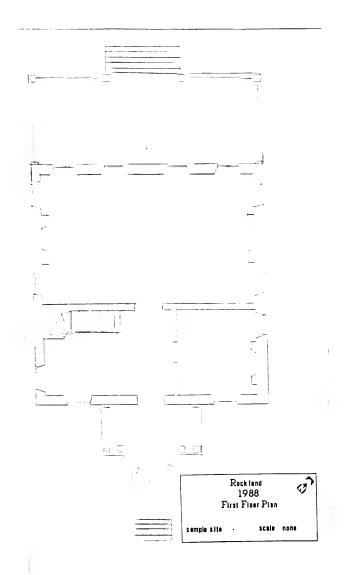
<u>Appendl. #26</u> Rockland Floor Flans

From: Rockland File. Fairmount Park Commission Files., Fairmount Park Commission. Memorial Hell Philadelphia Pa.

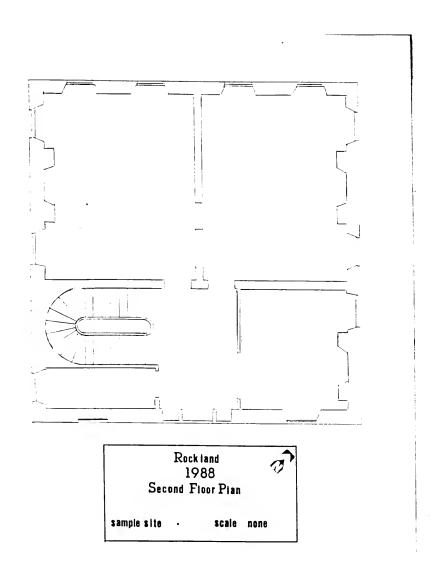




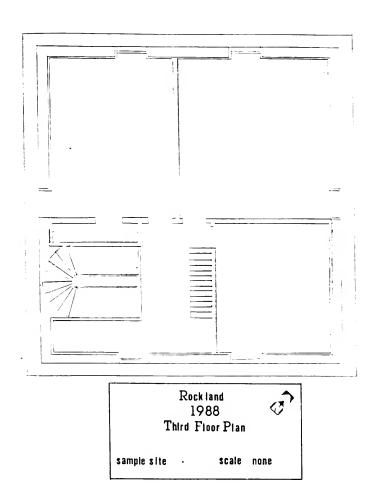


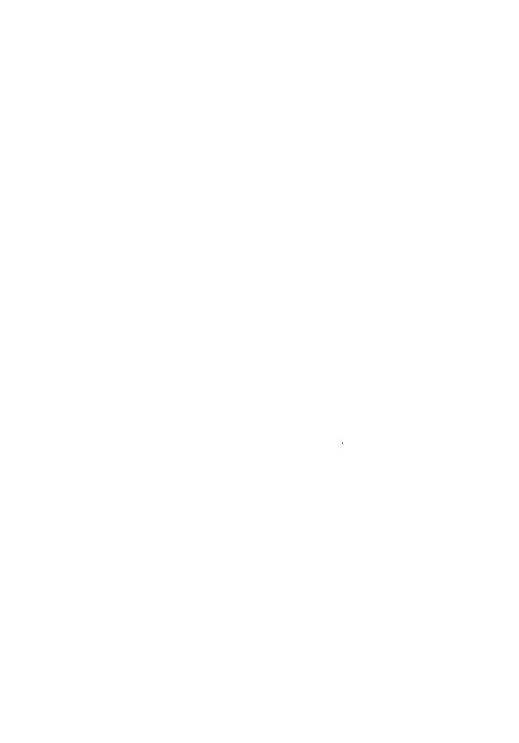












Appendix #27 Rockland Exterior Maintenance Problems



Rockland East Elevation



North Elevation





Rockland West Elevation



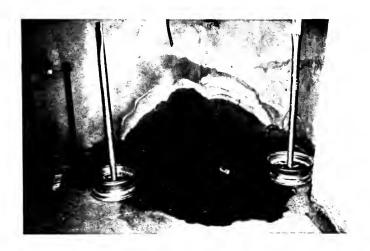
South Elevation





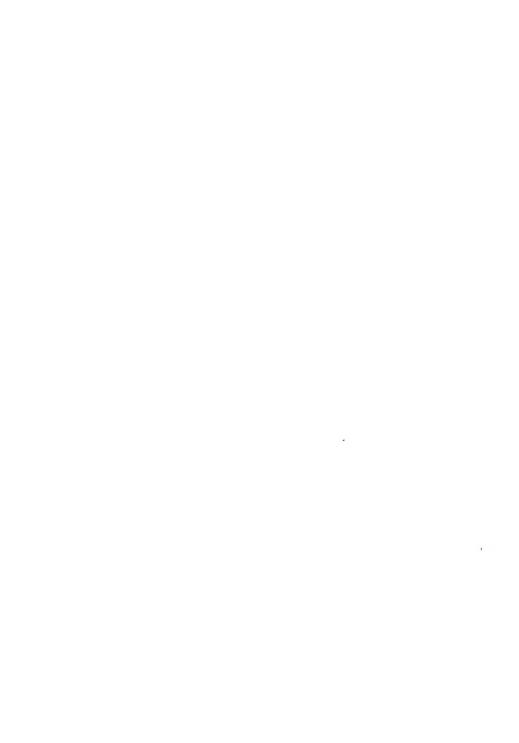
Maintenance Problems Encountered at Rockland

Leaking Water Value in the Basement

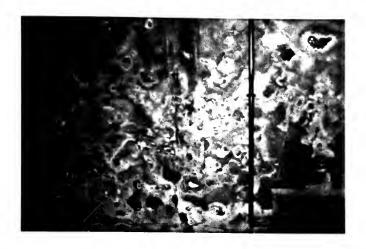


Water seeps through a basement door during heavy rain. Evidence or rising damp on the wall.





East wall of basement is covered with salt deposits left by evaporating water.

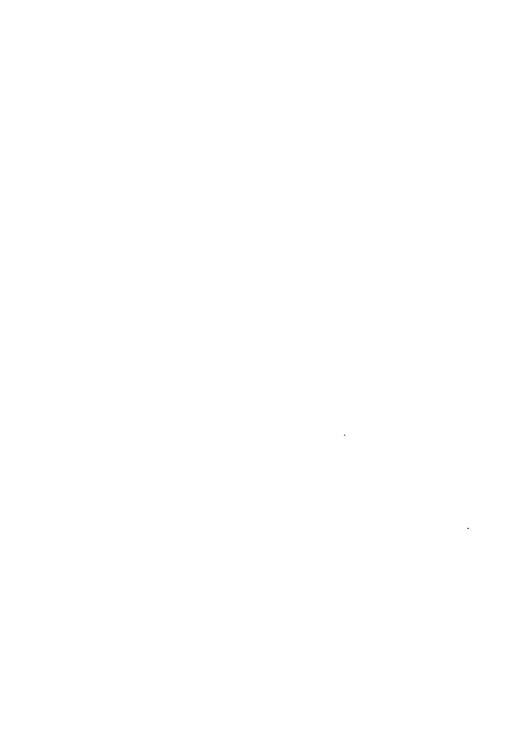


South Elevation, structural problem: this wall drops and bulges out.



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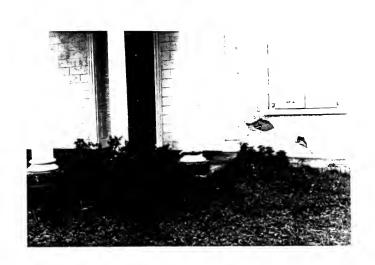
The interior first floor window in the dining room and the second floor window above show the effect of the drop in the wall.





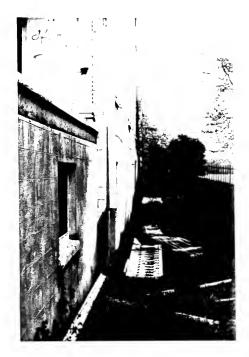
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Water penetration into the wall has caused the delamination of the rubble dash stucco in certain areas. The wooden porch column also shows the effects of water.



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A broken leader pipe drains rain water onto the building wall and a section of porch balluster is seen on the ground. On the opposite side of the building the leader is also broken





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When the back porch stairs were removed some of the ruled stucco was damaged.



All of the interior surfaces are peeling.



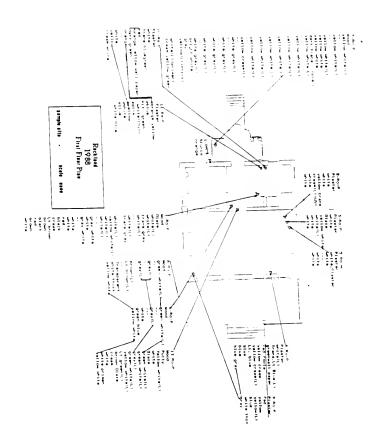
Damage to the third floor ceiling caused by a bad roof.

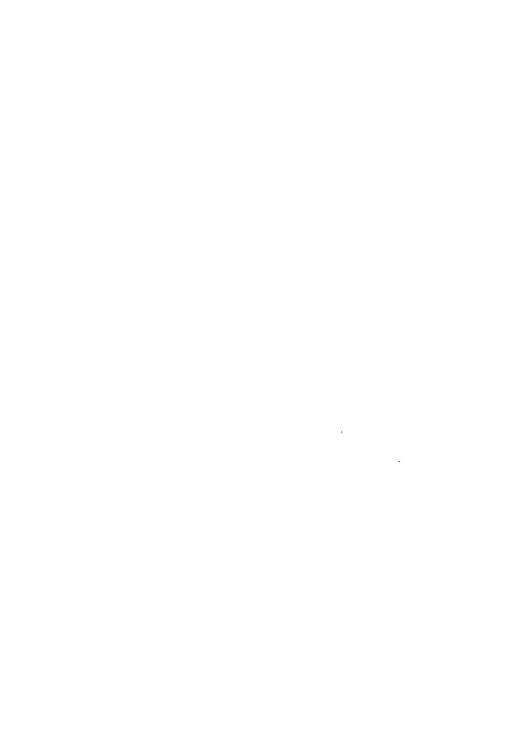




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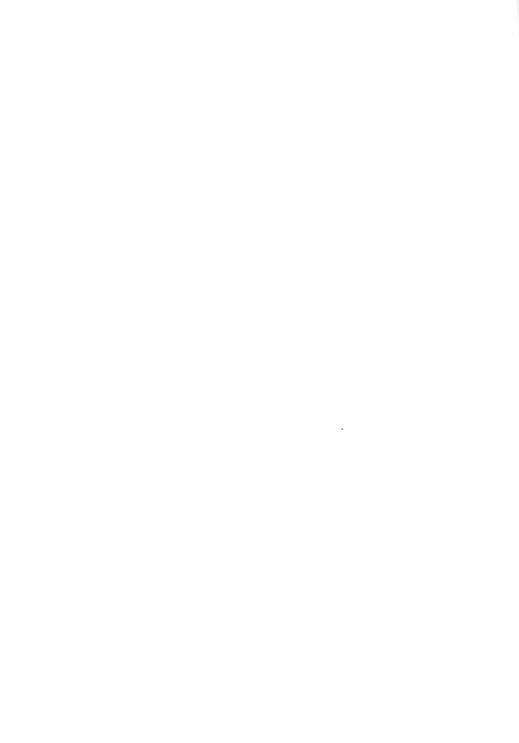
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PIGMENT AND MEDIUM TYPE: We Probable pigment(s): Probable pigment(s): Probable pigment(s): Probable pigment(s): Probable medium:	raviolet: yesno, Color with flourescence: Spot Test	Reaction Them > ?
PIGMENT AND MEDIUM TYPE: We Probable pigment(s): Probable pigment associated Property of the pigment Type /// / / / / / / / / / / / / / / / / /	raviolet: yes no Color with flourescence: Spot Test chickers! Nan 5 THCC pack soil Nan 5 THCC pack soil Nan 5 THCC pack soil Allert yellow blue proment = 100 forces of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distributions in the col	Reaction Them > ?
Possible pigment associated Possible Pigment associated Possible Pigment Type /#2 /#2 /#3 PIGMENT AND MEDIUM TYPE: WA Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropriate paint color RECOMMENDATIONS	raviolet: yes no Color with flourescence: Spot Test chickers! Nan 5 THCC pack soil Nan 5 THCC pack soil Nan 5 THCC pack soil Allert yellow blue proment = 100 forces of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distributions in the col	Reaction Them > ?
PIGMENT AND MEDIUM TYPE: WARProbable pigment(s): Probable pigment associated POSSIBLE Pigment Type //AZ // // // // // // // // // // // // //	raviolet: yes no Color with flourescence: Spot Test chickers! Nan 5 THCC pack soil Nan 5 THCC pack soil Nan 5 THCC pack soil Allert yellow blue proment = 100 forces of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distributions in the col	Reaction Them > ?
Possible Pigment Type /*2 Possible Pigment Type /*2 Possible Pigment Type /** Probable Pigment Type /** Probable Pigment(s): Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropriate paint color RECOMMENDATIONS Color: Paint Type: Paint Type:	raviolet: yes no Color with flourescence: Spot Test chickers! Nan 5 THCC pack soil Nan 5 THCC pack soil Nan 5 THCC pack soil Allert yellow blue proment = 100 forces of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distribution in the colored of many distributions in the col	Reaction Tom Trom Trom The O Tor bleaching
Possible Pigment Type // Possible Pigment Type // Possible Pigment Type // Possible Pigment Type // Possible Pigment Type // Possible Pigment Type // Possible Pigment // Probable pigment(s): Probable medium: COLOR: (Match sample to col purposes if appropr Butens paint color RECOMMENDATIONS Color:	raviolet: yesno Color	Reaction Them > ?



o The Analysis (datecom	structed, significant a	MVA child May Pertain The literations, dates painted	 - - -
ATA: Microscopic Analysi	ıs		_
ODES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W) Fracture (Dirt Laver (-)	Reaction of	Hydrocnloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine	Na S HCI) DMF) CH C H O) OH) TURP
ct.)	Comments 24.4. 16. 17. 18. 19. 1	chromochronology Commer	nts



nase II: Analysis and Recomm ructure	mendations 5-120-1	
cation of Sample	Pomoved By	
ite Removed	Removed By	
N-DEPTH MICROSCOPIC/CHEMICA	L ANALYSIS	
o. of Lavers to be Studied_		
eason for Layer Selection:	yer to be Matched: (relative	thinness, thickness
EDIUM ANALYSIS: (Separate p	aint/finishlayer from stratis	graphy, if necessarv.)
ossible medium	here Chemical -	nie Reaction
Oil	I'm Treen	Reaction
Latex	(H2 C/2	
	<u> </u>	
Waterbased/distemper		
Varnish Shellac		
Silettae		
Probable pigment associated	Spot Test H, SO + Phillips Personale (Arlay (NaOH by na ni my m	
Whiting	H, 50+	formers of calcum interio
Capper (mtaining	Patrisian recognide	red wor in the state ford .
Permina plue	MANUAL TOT THE HOPEN) WOLLD	Seed The April 10
Cobalt blue	15+9531mm mercacus Thuchanies	6 - 12314114 1631 MAILE 1918
PIGMENT AND MEDIUM TYPE:		1
Probable pigment(s): Probable medium:		
	lor standards; place under UV	
purposes if appropr	cate.)	Tight for bleaching
Butens paint color	Sherwin-Williams	
Butens paint colorRECOMMENDATIONS		
RECOMMENDATIONS		
RECOMMENDATIONS Color:	Sherwin-Williams	
RECOMMENDATIONS Color: Paint Type:	Sherwin-Williams	
RECOMMENDATIONS Color: Paint Type:	Sherwin-Williams	
RECOMMENDATIONS Color: Paint Type:	Sherwin-Williams	



ation of Sample Tolerom e Removed Maril 18 nificant Facts Regarding Th	= 1 Pentry	DA.	int rample of trim a	round d
nificant facts Regarding Th	e Structure's H	ist	ory Which May Pertain	The
The Analysis (dateconstruc	ted, significan	t a	lterations, dates par	nted)
		_		
A: Microscopic Analysis				
DES -Finish (F)	Reaction	of	Sodium Sulfide	(Na _n S)
Primer (P)			Hydrochloric Acid	(HCI)
Glaze (G)			Dimethylformamide	(DMF)
Varnish (V)			Methylene Chloride	(CH,CL,
Shellac (S)			Water	(H ₂ 0) -
Wall paper (W)			Alcohol	(PD)
Fracture (Turentine	TURP)
Dirt Laver (-)			Neat UV Light	(UV)
	nting, if any: (gr	aining, marbleizing,	polychromy
te lawers of decorative pair		gr		
Chromochronology Com	ments		Chromochronology Co	mments
Chromochronology Com	ments HQ	16.	Chromochronology Co	mments
Chromochronology Combinate: 1000	ments F.C.J	16.	Chromochronology Co	mments
Chromochronology Compostrate: 400d	ments HG	16. 17. 18.	Chromochronology Co	mments
Chromochronology Compostrate: 100d quantum Na12	ments 보다	16. 17. 18.	Chromochronology Co	mments
Chromochronology Combstrate:	HCU HCU HCU DMF	16. 17. 18. 19.	Chromochronology Co Keen Gray 12 peg	mments
Chromochronology Compostrate: 100d New York New	HU AME	16. 17. 18. 19. 20.	Chromochronology Co	mments
Chromochronology Compostrate: 100d New York New	ments HG HG AME DME DME	16. 17. 18. 19. 20.	Chromochronology Co	mments
Chromochronology Com Destrate: 100d 1788 What New S 1788 What New S Chentum Jellauhre	RG HG HG HG HG HG HG HG HG HG HG HG HG HG	16. 17. 18. 19. 20. 21. 22.	Chromochronojogy Co	mments
Chromochronology Compostrate: 20d 1948 white Nas 2 1948 Was 2 1948	ments HU HU DIME DIME DIME	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Co	Wass
Chromochronology Compostrate: 100d Gray Na15 Gray Na15 Grantw Grantw Grantw	PME DME	16. 17. 18. 19. 20. 22. 22. 23.	Chromochronology Co	Ners Var Var Var
Chromochronology Compostrate: 100d New York White New York New York Trends The York New York	PINE DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Co	Wars Vars Vars
Chromochronology Com betrate: xood gray white Na; 5 Gray Na; 5 Chromowy Sellarum te	ments HG HG PmE DmE DmE	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Co	Man S Var S Var S Var S
Chromochronology Com bstrate: 100d green Was 5 Green Nas 5 Green tow green tow	ments HCI HCI DME DME DME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27.	Chromochronology Co	Was Vas
Chromochronology Com bstrate: 100d green white Nex 2 Green two jellow white	HU HU HOLD TO THE DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27. 29.	Chromochronology Co	Was Vas
Chromochronology Com bstrate: 100d green Was 5 Green Nas 5 Green tow green tow	HU HU HOLD TO THE DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27.	Chromochronology Co	Was Vas Vas
Chromochronology Combstrate: 100d Gray Mars Nars Gray Nars Grandw	HU HU HOLD TO THE DIME	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27. 29.	Chromochronology Co	Was Vas



Phase II: Analysis and Recomme		
Location of Sample		
Date Removed	Pame	ved by
pace Kemoted	Исто	
IN-DEPTH MICROSCOPIC/CHEMICAL	ANALYSIS	
Purpose of Phase II Analysis		
No. of Layers to be Studied	#1.2	
Reason for Layer Selection: Visual Characteristics of Laye	first coat	
Visual Characteristics of Laye	r to be Matched: (r	relative thinness, thickness
glassiness, ropiness, ect.):		
MEDIUM ANALYSIS: (Separate par	nt/finishlayer from	stratigraphy, if necessarv.)
Possible medium #1,2_	Chemical MF	Reaction
Latex		
1	, 2 , HC1	
Waterbased/distemper Varnish		
Shellac		
_		
PIGMENT ANALYSIS: (Separate processary. Flourescence under near ultray Probable pigment associated with the probable pigment as the pro	.) violet: yes no $ u$, Color
Possible Pigment Type	Spot Test	Reaction
HZ lead white	/c7_ 	yellon +
# /	KT	
		_
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): /24d Probable medium: //nse		
Probable pigment(s):	white	
Probable medium:	۱۰۰ بیرے ۰	
COLOR: (Match sample to color purposes if approprat	standards; place u e.)	
		illiams
RECOMMENDATIONS		
Color: Paint Type:		
DOCUMENTATION		
C111 NO.		
Report prepared - Date:	By Whom:	-



ation of Sample e Removed March Facts Regarding	the Structure's h	_۵۷ ist	ory Which May Pert	tain The
The Analysis (dateconst	ructed, significan	it a	lterations, dates	painted:
				
A: Microscopic Analysis				
DES -Finish (F)	Reaction	of	Sodium Sulfide	
Primer (P)			Hydrochloric Acid	HCI
Glaze (3)			Dimethylformamide	DMF
Varnish (V)			Methylene Chlorid	e CH.
Shellac (S)			Water	HLC
Wall paper (W)			Alcohol	-1H)
Fracture ()			Turentine	TUR
Dirt Laver (-)			Near UV Light	(.V.)
	painting, if any:	(gr	aining, marbleizin	g, polvchi
)		(gr		
Chromochronology	Comments		Chromochronology	Comments
Chromochronology	Comments	16.	Chromochronology	Comments +
Chromochronology	Comments	16. 17.	Chromochronology	Comments +
Chromochronology	Comments	16. 17. 18.	Chromochronology	Comments +
Chromochronology	Comments	16. 17. 18.	Chromochronology	Comments + +
Chromochronology	Comments	16. 17. 18.	Chromochronology	Comments +
Chromochronology	Comments	16. 17. 18.	Chromochronology	Comments + + + + + + + + + + + + + + + + + + +
Chromochronology	Comments	16. 17. 18.	Chromochronology	Comments + +
Chromochronology	Comments	16. 17. 18. 19. 20. 21. 22.	Chromochronology	Comments
Chromochronology Strate: 1000 Allow where Stillow was	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology Ip I a white Allow white	Comments
Chromochronology sstrate: 10004 Atllow where gettles where gettles where gettles where gettles where gettles where gettles where	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology Le lla white Julia white	Comments
Chromochronology Strate: 1000 Allow where Stillow was	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	Chromochronology	Comments
Chromochronology Distrate: 10000 Allow Lord Julian Lor	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology Ip I a white Aller white	Comments + +
Setrate: 1000 of Julian where Julian where Julian where Julian was and Julian was and Julian was and Julian was and	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27.	Chromochronology	Comments
Chromochronology Strate: 1000 of Julian white Julian white Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was Julian was	Comments Na_S + + +	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27.	Chromochronology	Comments
Chromochronology Distrate: 10000 Allow Lord Julian Lor	Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 25. 27.	Chromochronology Ip I a white Aller white	Comments



cation of Sample tte Removed i-DEPTH MICROSCOPIC/CHEMICAL ANALYSIS or of Lavers to be Studied eason for Laver Selection: isual Characteristics of Layer to be Matclassiness, ropidess, ect.): EDIUM ANALYSIS: (Separate paint/finishla: ossible medium Oil Later Whitewash/calcimine Waterbased/distemper Varnish Shellac	ned: (relative th	nness, thickness
N-DEPTH MICROSCOPIC/CHEMICAL ANALYSIS or of Lavers to be Studied beason for Layer Selection: issual Characteristics of Layer to be Matchemical classiness, ropidess, ect.): EDIUM ANALYSIS: (Separate paint/finishlations): Chemical Oil Later Whitewash/calcimine Waterbased/distemper Varnish	ned: (relative th	ninness, thickness sphy, if necessary. Reaction
D. of Lavers to be Studied eason for Layer Selection: isual Characteristics of Layer to be Matchesian Characteristics of Layer to be Matchesian Characteristics of Layer to be Matchesian Company (Separate paint/finishlators) EDIUM ANALYSIS: (Separate paint/finishlators) Oil Chemical Chemical Children Chemical Children Chemical Children Children Chemical Children Chemical Children Chemical Children Chemical Children Chemical Children Chemical Children Children Chemical Children Chemical Children Child	er from stratigr	ninness, thickness uphy, if necessary. Reaction
co. of Lavers to be Studied pason for Layer Selection: isual Characteristics of Layer to be Matclassiness, ropidess, ect.): EDIUM ANALYSIS: (Separate paint/finishla) ossible medium	er from stratigr	ninness, thickness uphy, if necessary. Reaction
D. of Lavers to be Studied beason for Layer Selection: sisual Characteristics of Layer to be Matchesian control of the Mat	ned: (relative the	ninness, thickness aphy, if necessary. Reaction
isual Characteristics of Layer to be Matclassiness, ropidess, ect.): EDIUM ANALYSIS: (Separate paint/finishla: ossible medium Oil Later Whitewash/calcimine Waterbased/distemper Varnish	er from stratigra	aphy, if necessary.
DEDIUM ANALYSIS: (Separate paint/finishlamossible medium Chemical Oil Later Whitewash/calcimine Waterbased/distemper Varnish	er from stratigra	aphy, if necessary.
EDIUM ANALYSIS: (Separate paint/finishla) ossible medium Chemical Oil WE Later Whitewash/calcimine Waterbased/distemper Varnish	er from stratigra	aphy, if necessary.
Ossible medium Chemical Oil Later Whitewash/calcimine Waterbased/distemper Varnish	-	Reaction
Ossible medium Chemical Oil Later Whitewash/calcimine Waterbased/distemper Varnish	-	Reaction
Oil Later Whitewash/calcumine Waterbased/distemper Varnish		
Oil Later Whitewash/calcumine Waterbased/distemper Varnish		
Latex Whitewash/calcimine Waterbased/distemper Varnish		
Varnish		
Varnish		
Tourescence under near ultraviolet: yes_ robable pigment associated with flouresc Possible Pigment Type Spot Te	nce:	Reaction
		XIII X
		
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): /sad / me Probable medium:		
·- 		
COLOR: (Match sample to color standards; purposes if appropriate.) diet standards paint color	place under UV li naks the compa	ght for bleaching
Butens paint color amount SI	erwin-Williams _	
RECOMMENDATIONS		
Color:		
Paint Type:		
		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date: By Who	:	



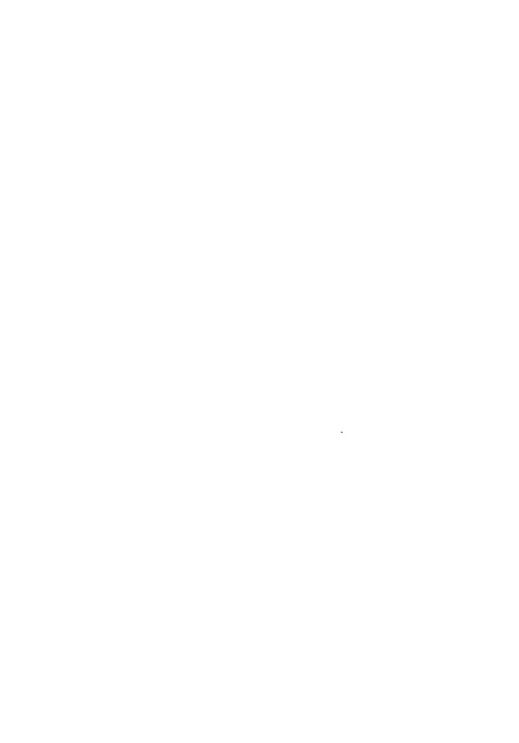
e Removed March 1988	kemoved By	" MVT	
gnificant Facts Regarding The St	ructure's Hist	ory Which May Pertain	The
The Analysis (dateconstructed,	significant a	lterations, dates pai	.nted)
TA: Microscopic Analysis			
in. Hieroscopie individia			
DES -Finish (F)	Reaction of	Sodium Sulfide	(Na.S
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethvlformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH_C
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(PA)
Fracture ()		Turentine	(TURI
Dirt Laver (-)		Near UV Light	(UV)
	g, if any: (gr	aining, marbleizing,	polychre
Chromochronology Comment	s .	Chromochronology Co	mments
Chromochronology Comment	s .	Chromochronology Co	mments
Chromochronology Comment	s	Chromochronology Co	mments
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Chromochronology Comment	16. 17. 17. 19. 19.	Chromochronology Co	mments
Chromochronology Comment	16. 16. 19. 20.	Chromochronology Co	mments
Chromochronology Comment	16. 17. 17. 19. 19. 19. 19. 19. 20. 21. 20. 21.	Chromochronology Co	mments
Chromochronology Comment	16. 17. 17. 20. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Chromochronology Co	nments
Chromochronology Comment. ubstrate: Platter All Indian Comment. Comment. All Indian Comment. Comment. All Indian Comment. Comment. All Indian Comment.	16. 17. 17. 19. 19. 20. 21. 22. 23. 23.	Chromochronology Co	nments
Chromochronology Comment ubstrate: Planting Comment Co	16. 16. 17. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Chromochronology Co	mments
Chromochronology Comment	16. 16. 19. 20. 21. 22. 23. 244. 25	Chromochronology Co	mments
Chromochronology Comment. bstrate: Platter All ha resoluted for the control of	16. 17. 17. 20. 20. 21. 22. 23. 24. 25. 26.	Chromochronology Co	mments
Chromochronology Comments ubstrace: Place Millia tradium for the first tradium for the	16. 16. 17. 20. 19. 20. 21. 22. 23. 24. 25. 26. 27	Chromochronology Co	numents
Chromochronology Comment. Ubstrate: Platter Malla Insulate Diff Lant Diff 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	16. 17. 20. 20. 21. 22. 23. 24. 25. 26. 27. 28	Chromochronology Co	mments
Ubstrate: Platter While Texture of Market Light of Market One of the Light One of the Light 1. 2. 3. 3. 4.	16. 16. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Chromochronology Co	mments
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Chromochronology Comment ibstrate: Plante Inglia Translated The Comment The Comm	16. 16. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Chromochronology Co	mments
Chromochronology Comment. bstrate: Platter Hall to translate to the comment. Section of the comment. Land of the comment. 1. 2. 3. 4.	16. 16. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Chromochronology Co	mments



tructure		
ocation of Sample		
ocation of Sampleate Removed	Remove	а Ву
N-DEPTH MICROSCOPIC/CHEMICA		
urpose of Phase II Analysis		
o. of Layers to be Studied_		
Reason for Layer Selection:		
visual Characteristics of Laglassiness, ropiness, ect.):	yer to be matched: (rei	ative thinness, thickness
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from s	stratigraphy, if necessary.
Possible medium	Chemical	Reaction
ossible medium Oil Kyrt #1-	DMF	-
Latex		
Whitewasn/calcimine	HC:	-
waterbased/distemper		
Varnish Shellac		
Shellac		
necessan Flourescence under near ult: Probable pigment associated	raviolet: yesno	
Possible Pigment Type	Spot Test	Reaction
	15-1	
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): /e	Carint.	
Probable medium: 65	cimine	
COLOR: (Match sample to col	or standards: place und	er UV light for bleaching
purposes if appropr		
. 1-1	_	
Butens paint colorhit	Sherwin-Wil	liams
RECOMMENDATIONS		
Color:		
Paint Type:		
DOCUMENTA TION		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	
mepore prepared - bate:	Dy #110m.	



ructure togklown cation of Sample Titern W. wall NW forner bylon their mill te Removed Apr. 188 Removed By MW gnificant Facts Regarding The Structure's History which May Pertain The The Analysis (dateconstructed, significant alterations, dates painted) Da Alteration C. 1810				
A: Microscopic /	nalysis			
PES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (Fracture (Dirt Laver ()))) W)	on of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol Turentine Near UV Light	(Na S HCI) DMF) CH_O (H_O) OF) TURE (UV)
)	practive painting, if any			polvchro
Chromochro	nology Comments			polvchro
Chromochron Ostrate: Plaster Red	nology Comments	. 16.	anning, marbleizing, Chromochronology Co	polvchro
Chromochronostrate: Plaste, Rea	nology Comments	16. 17.	anning, marbleizing, Chromochronology Co	polvchro
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Chromochro strate: Plaster Pak Lite/or Lullor	and Comments and Prince Diff Nate Diff	16. 17. 18.	anning, marbleizing, Chromochronology Co	polvchro
Chromochro strate: Plaster Pak Lite/or Lullor	and one of the second of the s	16. 17. 18. 19.	Chromochronology Co	polvchro
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Chromochro strate: Plasty, Roh Lights The The white this	and of Comments and for the former f	16. 17. 18. 19. 20. 21.	anning, marbleizing, Chromochronology Co	polvchro
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Chromochro ostrate: Plasty, Reh Lyllor Julior Julior Constitution	and primer Drife Note Drife Note Drife Comments And And And And And And And And And An	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Co	polvchro
Chromochro strate: Plessy, Peh Ist Var	and primer Drife Primer Drife Park Drife	16. 17. 18. 19. 20. 21. 22. 23.	Chromochronology Co	polvchro
Chromochro ostrate: Plasty, Poh Lightor Little Lightor Lobit thin Carag	nology Comments acd primer Drift Nels 2me 2ne 2ne CH2(12	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	canning, marbleizing,	polvchro
Chromochro strate: Plasse, Rch Listler	and primer Drife Note Drife Note Office Comments	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	anning, marbleizing, Chromochronology Co	polychro
Chromochro Chromochro Dehreiter: Plesser Pehreiter Lister The Lister Chromochro Ch	nology Comments and primer Dime Net Dime Net Dime Hella Commer (Hella	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	anning, marbleizing, Chromochronology Co	polychro
Chromochro Strate: Plasty, Pan Lightor Julian Carag	nology Comments and primer Drift Nels 2me 2ne 2ne CH2(/2	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology Co	polvchro
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Chromochro Strate: Plasty, Pan Lightor Julian Carag	nology Comments and primer Dime Net Dime Net Dime Hella Commer (Hella	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	Chromochronology Co	polychro



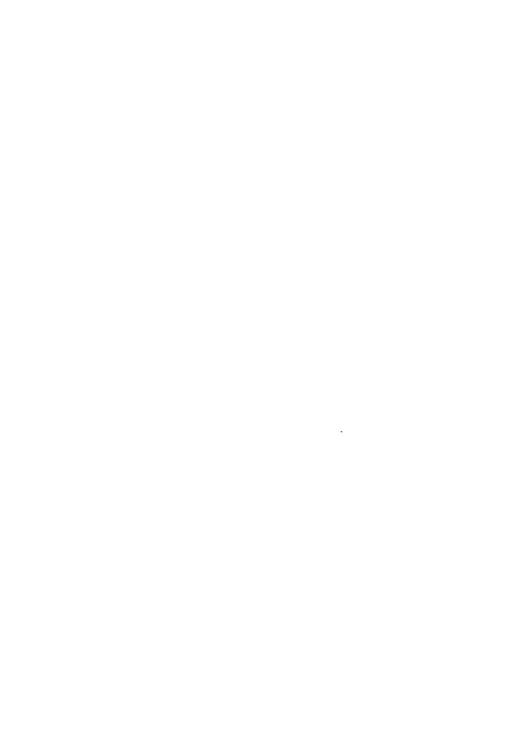
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DEPTH MICROSCOPIC/CHEMI	CAL ANALYSIS	
pose of Phase II Analys	15/14 3/ayers 1,2	.,3
ot Lavers to be Studie son for Laver Selection		
sual Characteristics of	Laver to be Matched: (relat:	ive thinness, thickness
ssiness, ropiness, ect.):	
NUM ANALYSIS: (Separate	paint/finishlayer from str.	atigraphy, if necessary.
ssible medium	Chemical	Reaction
011	Rel-Dmf	
Latex Whitewasn/calcimine	Red HC	
Waterbased/distemper		
Varnish		
Shellac	DME	-
~hite		
	ltraviolet: yes no ν , (ed with flourescence:	
	e Snot Test	Reaction
Possible Pigment Typ	Fotassium terroryand	Reaction
Possible Pigment Typ	Totalsing terroryand	
Possible Pigment Typ	Totalsing terroryand	
Possible Pigment Typ	Totalsing terroryand	
Possible Pigment Typ Ton orid Y Lod white (GMENT AND MEDIUM TYPE:	training treesquid	+ both primer or
Possible Pigment Typ	training treesquid	+ both primer or
Possible Pigment Typ Toda who the IGMENT AND MEDIUM TYPE: robable pigment(s): Tele robable medium: Red Co.	A-Tron oxide W	hire lend wing
Possible Pigment Typ Ton outding IGMENT AND MEDIUM TYPE: robable pigment(s): Tel robable medium: Red Co.	A- Trom oxide with the color standards; place under	hire lend wing
Possible Pigment Typ Ton o rid N IGMENT AND MEDIUM TYPE: robable pigment(s): Ter robable medium: Red co. OLOR: (Match sample to copurposes if appro	de Trom orids with the color standards; place under oprate.)	him lend wing by light for bleaching
Possible Pigment Typ Composition Compositi	A- Trom oxide with the color standards; place under	him lend wing by light for bleaching
Possible Pigment Typ Tod white IGMENT AND MEDIUM TYPE: robable pigment(s): Terobable medium: Ted co. OLOR: (Match sample to copurposes if approduces paint color ECOMMENDATIONS	A-Tron oxide Williamst world willing Shervin-Willi	him lend wing by light for bleaching
Possible Pigment Typ Tomography R IGMENT AND MEDIUM TYPE: robable pigment(s): Terobable medium: Red co. OLOR: (Match sample to compurposes if approduces paint color ECOMMENDATIONS	A-Tron oxide Williamst world: Williamst world: Shervin-Willi	him lend with him light for bleaching ams
Possible Pigment Typ Tomografic R IGMENT AND MEDIUM TYPE: robable pigment(s): Terobable medium: Red co. OLOR: (Match sample to c purposes if approutens paint color ECOMMENDATIONS	A-Tron oxide Williamst world willing Shervin-Willi	him lend with him light for bleaching ams
Possible Pigment Typ Ton or India R Ton or India R Ton or India R Ton or India	A- Trom oxid: Williamst Shervin-Willi	him lend with him lorder in the light for bleaching ams
Possible Pigment Typ Todh. Ty DENT AND MEDIUM TYPE: Dobable pigment(s): fc cobable medium: fcd co. LOR: (Match sample to co purposes if appro tens paint color COMMENDATIONS lor: lod or the int Type: half	A- Trom oxid: Williamst Shervin-Willi	him lend white him losed in the land of the bleaching ams



enificant Facts Kegarding Th	nemoved By	ory Which May Pertain	The
The Analysis (dateconstruc	ted, significant a	lterations, dates pai	nted)
TA: Microscopic Analysis			
DES -Finish (F)	Reaction of	Sodium Sulfide	(Na _n S
Primer (P)		Hydrocnloric Acid	HCI
Glaze G)		Dimethylformamide	DMF)
Varmish (V)		Methylene Chloride	CHaC
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(PH)
Fracture ()		Turentine	(TURI
Dirt Laver (-)		Near UV Light	(UV)
ote layers of decorative pair	nting, if any: (gr	aining, marbleizing,	polychr
et.).	(81	221121151 20010101010101	,
Chromochronology Com	ments	Chromochronology Co	mments
ubstrate: Halter			
ubstrate: Halter	16.		
ubstrate: Halter	ce 14-10-P 17.		
ubstrate: Halter - White - Franklichen Almeden	Cane core 15.		
ubstrate: Halter - Mrh. H - Haller - Haller - Halter Came total 18.			
ubstrate: Halter - Wh. H - pranslucion har green - creane with mad paper - the borsen	Came total 18.		
ubstrate: Halter - Wh. H - pranslucion har green - creane with mad paper - the borsen	Came total 18.		
ubstrate: Halfer - MAM	(20) (10) (17) (17) (19) (19) (19) (19) (19) (19) (19) (19		
ubstrate: Halfer - Mh.M	17. (April 6-17) 17. (April 6-17) 18. 19. 19. 20. 21. 22. 23.		
ubstrate: Halfee White	17. (Agree 14-16-17) 17. (Agree 14-16-17) 18. 19. 20. 21. 22. 23. 24.		
ubstrate: Halfee - MAM - FAMMENT Alse green - Lake gree	17. 14. 17. 17. 18.		
ubstrate: Halfer - MAN	17 10 17 17 18 18 18 18 18 18		
whater the green of the green o	17- 17-		
ubstrate: Halfee - MAM - Frankeni ble green - Lake green	17- (6) P 17- (6) P 17- (6) P 17- (6) P 17- (6) P 18-		
ubstrate: Halfer - Mh.M	1		



Phase II: Analysis and Re Structure		
Location of Sample		
Date Removed	Removed B	ν
IN-DEPTH MICROSCOPIC/CHE		
Purpose of Phase II Analy	ys 1s	
No. of Lavers to be Stud: Reason for Layer Selection Visual Characteristics of glassiness, ropiness, ec	on: f Layer to be Matched: (relati t.):	ve thinness, thickness
MEDIUM ANALYSIS: (Separa	te paint/finishlayer from stra	
Possible medium Oil Latex	Chemical	Reaction
Whitewasn/calcimine		
haterbased/distember		
Varnish		
Shellac		
	-	
nece	wrate paint/finish layer from issary.) ultraviolet: yesno, Cated with flourescence:	
Possible Pigment T	ype Spot Test	Reaction
	- 00-11	
	10	
PIGMENT AND MEDIUM TYPE	:	
Probable pigment(s): Probable medium:		
COLOR: (Match sample to purposes if app	color standards; place under	UV light for bleacning
Butens paint color	Sherwin-Willia	ams
RECOMMENDATIONS		
Color:		
DOCUMENTATION		
DOCUMENTATION Sample/slide NO:	By Whom:	
Keport prepared - Date:	By Whom:	



L 1 E I				_		
						
TA: Microscopic A	nalysis					
DES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (Reaction	of	Sodium Sulfide Hydrochloric Acid Dimethvlformamide Methvlene Chloride Water Alcohol	(H,O)
Fracture (Turentine Near UV Light	(TURP (UV)
Dirt Layer (-)				Heat of Bigne	
	_		og af opge	(0.5		polychro
ote lavers of decc	prative				aining, marbleizing,	
ote lavers of deco	orative	Commen		(gr	aining, marbleizing,	
Chromochro	nology	Commen H,O	ts	16.	aining, marbleizing, Chromochronology Co	omments
Chromochro	nology	Commen H,O	ts	16. 17.	aining, marbleizing,	omments
Chromochro	nology	Comment	ts	16. 17. 18.	aining, marbleizing, Chromochronology Co	omments
Chromochro	nology	Commen H,O	ts -	16. 17. 18.	aining, marbleizing, Chromochronology Co	omments
Chromochro Chromo	nology	Commen H,O	ts	16. 17. 18. 19.	alning, marbleizing, Chromochronology Co	omments
Chromochro Chromochro Strate: Hanter Orace yellow Chromochro Alva Chromochro Alva Chromochro Thus Millo Millo Millo Millo	nology	Commen.	ts —	16. 17. 18. 19. 20.	aining, marbleizing, Chromochronology Co	omments
Chromochro ubstrate: Thate Arone yellow - Alexed - The Arthur laye - This	nology	Commen:	ts —	16. 17. 18. 19. 20. 21.	aining, marbleizing, Chromochronology Co	omments
Chromochron obstrate: Thatter of the character of the cha	nology	Commen.	ts F	16. 17. 18. 19. 20. 21. 22.	aining, marbleizing, Chromochronology Co	omments
Chromochrolubstrate: Playter Orone yellow The gellow The hitelage This Th	nology	Commen H, O	L.S	16. 17. 18. 19. 20. 21. 22. 23. 24.	aining, marbleizing, Chromochronology Co	omments
Chromochro Chromo	nology (Att)	Commen		16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	alning, marbleizing, Chromochronology Co	omments
Chromochro Chromochro Ubstrate: Planter Orace yellow It arten The hitr laye This Litarel Atlante Orace Atlante It arten Orace It arten It arte	nology (At)	Commen	i.s	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26.	aining, marbleizing, Chromochronology Co	omments
Chromochrolubstrate: Hayer Orcase salar The animal sayer Sayer The animal sayer S	nology	Commen	# # # # # # # # # # # # # # # # # # #	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	alning, marbleizing, Chromochronology Co	pements
ote layers of deco	nology (Art)	Commen.	i.s	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28.	aining, marbleizing, Chromochronology Co	omments



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N-DEPTH MICROSCOPIC/CHEMICAL ANALY	rsis
drpose of rhase II Analysis	
o. of Lavers to be Studied +/	2
eason for Laver Selection:	
isual Characteristics of Layer to	be Matched: (relative thinness, thickness
lassiness, ropiness, ect.):	word shine
EDIUM ANALYSIS: (Separate paint/fi	inishlayer from stratigraphy, if necessary
Ossible medium ديد C	bemical Reaction
	- 1
Latex CH.C.	
Whitewash/calcimine	
	T -
Varnish Shellac	
	
Probable pigment associated with f.	t: yesno, Colorlourescence:
Possible Pigment Type	Spot Test Reaction Was 5 for chromate principles of the control o
Sivore VR241	- Mars for chromate - inconclusive
-Blow	10.000
PIGMENT AND MEDIUM TYPE:	
Probable pigment(s): Blu-LHran Probable medium: Transe	marine
Probable medium:	sellow sener
	ndards; place under UV light for bleaching
purposes if appropriate.)	idalds, place under by light for bleaching
Drange I	1
Butens paint color /16cmts c. / d	Sherwin-Williams
RECOMMENDATIONS	
Color:	
Paint Type:	
Paint Type:	
Paint Type:	By whom:



Structure Kickland	- Ko - 1		
ocation of Sample Interior Stave	was wall 2nk flo	or above chair rai	\
Date Removed	Removed By		
ignificant Facts Regarding The	e Structure's Hist	ory Which May Pert	ain The
To The Analysis (dateconstruc			
			
DATA: Microscopic Analysis			
CODES -Finish (F)	Reaction of	Sodium Sulfide	(Na _n S)
Primer (P)		Hydrochloric Acid	HCI)
Glaze G)		Dimethvlformamide	
Varnish (V)		Methylene Chloride	
Shellac (S)		Water	(H ₀ 0)
Wall paper (W)		Alcohol	(HO)
Fracture ()		Turentine	(TURP)
Dirt Laver (-)		Near UV Light	(171)
Dirt Laver (-)		wear ov Light	1 (1)
Note layers of decorative pair	nting, if any: (gr	aining, marbleizing	g, polychromv
ect.) Chromochronology Comm		anning, marbleizing	·
Chromochronology Communication Substrate: Planter	ments	Chromochronology	·
Chromochronology Come Substrate: Platfr 1. whyte Hill	ments 16.	Chromochronology	Comments
Chromochronology Comm Substrate: Planter 1. white Hill 2. Lah. to (4.11	nents 16.	Chromochronology	Comments
Chromochronology Come Substrate: Plaster 1. what Hill 2. Land Hill 3. Land Hill	16.	Chromochronology (white D	Comments
Chromochronology Come Substrate: Planter 1. what Hill 2. what Hill 3. what Hill 4. Li	16. 17. 18.	Chromochronology (white)	Comments ME
Chromochronology Come Substrate: Planter 1. what Hill 2. Lah 1 (4(1) 3. Jan 1 Hill 5.	16. 17. 18. 19.	Chromochronology White D Manage Hive J	Comments ME DOK
Chromochronology Come Substrate: Planter 1. what Hill 2. what Hill 3. what Hill 4. Li	16. 17. 18. 19. 20. 21.	Chromochronology White D Meace Hiller I	Comments me me me me
Chromochronology Come Substrate: Planter 1. white HLI 2. white HLI 3. white HLI 4. LI 5. — HLI 5. — HLI 5. — HLI 6. white	16. 17. 18. 19. 20. 21. 22.	Chromochronology (white D Office I In The I If The I If Med Pools	Comments ME DOME DME
Chromochronology Communication	16. 17. 18. 19. 20. 21. 21. 22.	Chromochronology White D Mance Flow Hed Poh Wilex	Comments DME DME DME DME
Chromochronology Come Substrate: Planter 1. what Hill 2. what Hill 4. what Hill 5. what Hill 6.	16. 17. 18. 19. 20. 21. 22. 23. 24.	Chromochronology (White Difference of Hiller Diffe	Comments THE DIME THE THE THE THE THE
Chromochronology Communication Chromochronology Chromochronology	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology (white D) Wance Him I I The III Color Poh	Comments ME DOME OME OME OME OME OME OME
Chromochronology Comm Substrate: Planter 1. white Hill 2. white Hill 3. white Hill 4. white Hill 6. white Hill 6. white Hill 6. white Hill 7. white Hill 7. white Hill 8. white Hill 10. white Hill 11. Show white Hill 11. Show white Hill 11. Show white Hill 11. Show white Hill 11. Show white Hill 12. white Hill 13. white Hill 14. White Hill 14. White Hill 15. White Hill 16. White Hill 16. White Hill 17. White Hill 18. White	16. 17. 18. 19. 20. 21. 22. 23. 24. 25.	Chromochronology White D Mance Him I I I I I I I I I I I I I I I I I I I	Comments ME OME OME OME OME OME OME OME
Chromochronology Come Substrate: Platte 1. white Hill 2. white Hill 3. white Hill 4. white Hill 4. white Hill 5	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology (vh.tr /) Orange Him. / Hed Prob. / Deller / Man tr / Class	Comments ME DOME OME OME OME OME OME OME
Chromochronology Come Substrate: Planter 1. white Hill 2. thin Hill 3. white Hill 4. thin Hill 5	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Chromochronology White Daniel Chromochronology Whate Daniel Chromochronology Head Pont Duller Chromochronology Head Pont Duller Chromochronology Head Pont Duller Chromochronology	Comments ME OME OME OME OME OME OME OME
Chromochronology Comm Substrate: Planter 1. white Hill 2. white Hill 3. white Hill 4. white Hill 6. white 6. white 7. white Hill 10 11. Brown white Hill 11. Strangwhite 12. white Hill 12. white Hill 13. white Hill 14. There white Hill 14. There white Hill 15. white Hill 16. white Hill 17. White Hill 18. White Hill 18. White Hill 19. White Hill 1	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 27. 28. 29. 29.	Chromochronology White D MGage Hiller Hed Foh Veller Mary T Mary	Comments DE DOME
Chromochronology Come Substrate: Planter 1. white Hill 2. thin Hill 3. white Hill 4. thin Hill 5	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 27. 28. 29. 29.	Chromochronology White Daniel Chromochronology Whate Daniel Chromochronology Head Pont Duller Chromochronology Head Pont Duller Chromochronology Head Pont Duller Chromochronology	Comments ME OME OME OME OME OME OME OME
Chromochronology Comm Substrate: Planter 1. white Hill 2. white Hill 3. white Hill 4. white Hill 6. white 6. white 7. white Hill 10 11. Brown white Hill 11. Strangwhite 12. white Hill 12. white Hill 13. white Hill 14. There white Hill 14. There white Hill 15. white Hill 16. white Hill 17. White Hill 18. White Hill 18. White Hill 19. White Hill 1	16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 27. 28. 29. 29.	Chromochronology White D MGage Hiller Hed Foh Veller Mary T Mary	Comments DE DOME



Phase II: Analysis and Recommendations \forall Structure Location of Sample Date Removed_ Removed by IN-DEPTH MICROSCOPIC/CHEMICAL ANALYSIS Purpose of Phase II Analysis No. of Lavers to be Studied Reason for Laver Selection: Visual Characteristics of Laver to be Matched: (relative thinness, thickness glassiness, ropiness, ect.): MEDIUM ANALYSIS: (Separate paint finishlaver from stratigraphy, if necessary. Possible meaium Chemical Reaction Oil Latex Whitewasn/calcimine Waterbased/distemper Varnish Shellac PIGMENT ANALYSIS: (Separate paint/finish layer from stratigraphy, if necessary. Flourescence under near ultraviolet: yes___no___, Color_ Probable pigment associated with flourescence: Possible Pigment Type Reaction local white PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: .~ h, pe was-COLOR: (Match sample to color standards; place under UV light for bleaching purposes if approprate.) Butens paint color whitewark Shervin-Williams RECOMMENDATIONS

W. He wash

Report prepared - Date: 7, 15 & By Whom:

Color:_ Paint Type:_

DOCUMENTATION Sample/slide NO:



cocation of Sample Introduced to the Removed March 1948 ignificant Facts Regarding To The Analysis (dateconstru	ne otructure o mio	COLA MILICII INDA I CI COL	
ATA: Microscopic Analysis			
ODES -Finish (F) Primer (P) Glaze (G) Varnish (V) Shellac (S) Wall paper (W)	Reaction of	Sodium Sulfide Hydrochloric Acid Dimethylformamide Methylene Chloride Water Alcohol	(NanS HCI) DMF) CHnC (HnO) (OH)
Fracture () Dirt Laver (-)		Turentine Near UV Light	(TURP (UV)
Fracture () Dirt Laver (-) ote layers of decorative pa ct.). Chromochronology Co		Turentine Near UV Light	(TURP (UV)
ote layers of decorative pa	numents 16	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
ote layers of decorative pact.). Chromochronology Coubstrate: Path	mments 16	Turentine Near UV Light raining, marbleizing, Chromochronology	(TURP (UV)
Chromochronology Co	mments 16	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Chromochronology Co ubstrate: Putty Light Ward The Mark Ward T	16 17 18 19 0 PME 19	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Chromochronology Co	mments 16 17 17 19 19 19 20 21	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Chromochronology Co ubstrate: Potty . Mallow white . The Marc May . The Marc May . The Marc May . The Marc May	16 17 18 19 19 19 19 19 19	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Tracture () Dirt Laver (-) ote layers of decorative pa ct.). Chromochronology Co ubstrate: Fully Allow white Haz Tributhouse Haz Tributhouse Haz Tributhouse Haz Tributhouse Haz	mments 16 17 18 18 19 20 21 22 22 22 22 22 22 22 22 22 22 22 22	Turentine Near UV Light Faining, marbleizing, Chromochronology C	(TURP (UV)
Tracture () Dirt Laver (-) ote layers of decorative pa ct.). Chromochronology Co substrate: Poddy Chromochronology Co substrate:	mments 16 17 18 19 20 20 20 22 24 25 25 25 25 25 25 25 25 25 25 25 25 25	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Chromochronology Co Substrate: Advantage Maga Chromochronology Co Subst	mments 16 17 18 19 20 21 22 24 25	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)
Fracture () Dirt Laver (-) Dirt Laver (-) Chromochronology Co Substrate: Putty Agree Mag Title Work Mag T	mments 16 17 18 19 20 21 22 24 25 26 27	Turentine Near UV Light aining, marbleizing, Chromochronology ((TURP (UV)
Chromochronology Co Substrate: Path	mments 16 17 17 18 27 20 20 21 22 24 25 26 26 26 26 26 26 26 26 26 26 26 26 26	Turentine Near UV Light raining, marbleizing, Chromochronology C	(TURP (UV)

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Structure		
Location of Sample		
Date Removed	Removed	Bv
IN-DEPTH MICROSCOPIC/CHEMICAL	L ANALYSIS	
Purpose of Phase II Analysis		
No. of Lavers to be Studied		
Reason for Layer Selection:		
Visual Characteristics of La		
glassiness, ropiness, ect.):		·
MEDIUM ANALYSIS: (Separate p	aint/finishlayer from s	tratigraphy, if necessary.)
Possible medium	Chemical	Reaction
011	DmF	
Latex		
Whitewasn/calcimine	+-0	
Waterbaseq/distemper		
Varnish Shellac		
Shellac		
PIGMENT ANALYSIS: (Separate		
necessar Flourescence under near ultr Probable pigment associated	raviolet: yesno,	
Possible Pigment Type # legal # white	Spot Test Na. S NaOH + HCI+ Eye	Reaction Arnea Glack
PIGMENT AND MEDIUM TYPE:		
Probable pigment(s): /eaa	•	
Probable medium:	.m.ne 3	
COLOR: (Match sample to col purposes if appropr	ate.)	
Butens paint color	Sherwin-Wil	liams
RECOMMENDATIONS		
Colors		
Color: Paint Type:		
DOCUMENTATION Sample/slide NO:		
Report prepared - Date:	By Whom:	



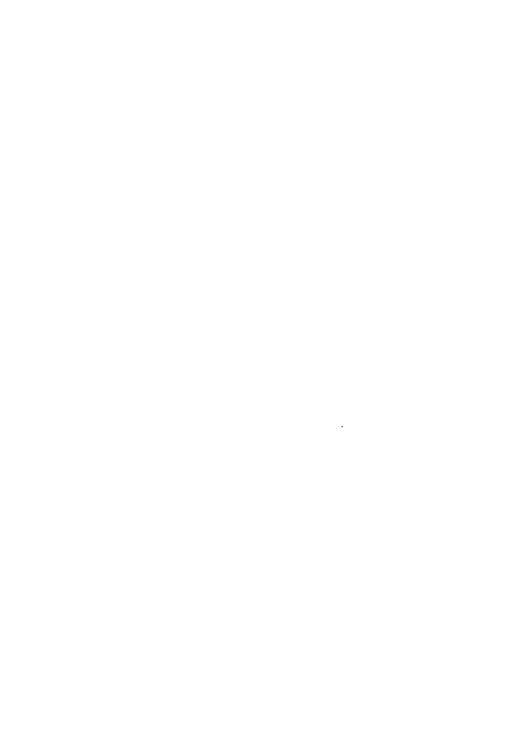
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ocation of Sample	11 2	0 1 1	
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ignificant Facts Regarding The			
o The Analysis (dateconstructe	d, significant a	lterations, dates pai	nted)
			
			
ATA: Microscopic Analysis			
ODES -Finish (F)	Socetion of	Sodium Sulfide	ia.S/
Frimer (P)	reaction of	dvdrochloric Acid	-CI)
Glaze (G)		Dimethylformamide	DMF)
Varnish (V)		Methylene Chloride	TH_CL
Shellac (S)		Water	(H ₂ 0)
Wall paper (W)		Alcohol	(OF)
Fracture ()		Turentine	(TURP)
Dirt Laver (-)		Near UV Light	(UV)
DITC Davel (-)		Wear C. Ergit	C +)
Chromochronology Comme	nts -	Chromochronology Co	nments
Substrate: pla, Mev	NALS		
1 15-11-1 1111 ~ whate	- 16.	Thin white	
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sulfer mounteet but	= 0,1 17. 18.	Ē144	
2. thus t rensincent the	- 0, 1 17. - 19.	Ē144	
sulfer mounteet but	= 0,1 17. 18.	Ē144	YEN DIAME
thus a continent that inter continent Red williapperativellowers	-0.1 17. -18. 181964. 19. 101.66. 20. 21.	The Marketin a	ren Digme
thus a continent that inter continent Red williapperativellowers	= 0,1 17. 18.	The Marketin a	ren Digme
the transmission the	-0.1 17. 19. 19. 19. 19. 19. 10. 20. 21. 22. 23. 24.	Wallpaperin a	ere
the transvent by Green Litter John John John	17. 18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Wallpaper to a ser dark or allepaper - Tree	een u caru
States continent the Act military experiences Continent Contine	17. 18. 19. 19. 19. 19. 19. 19. 19. 19	The will paper in a series are said and said paper - the	een u caru
the transment by Arten continuent Rek mollipaped production as Internation Internation Internation Internation Internation Internation Internation	17, 18, 19,	wallpaper - Tre	een u caru
Street assistent the Grant moultages Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little 1. Little	21 17, 18, 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	Tild Allipaper for an analypaper - Ire - paper - pap	een u caru
State Continent the Act military c/m/mells and Continent Contin	21 17. 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	Wallpaper in a service and and and and and and and and and and	een u caru
State Continent the Act military c/m/mells and Continent Contin	21 17, 18, 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	Wallpaper in a service and and and and and and and and and and	een u caru
Shed acriment had After monthstear Ach militappe/m/mellswan Little Control Cont	21 17. 19. 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	wallpaper - I'e	er care
Shed acriment had After monthstear Ach militappe/m/mellswan Little Control Cont	21 17. 19. 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	Wallpaper in a service and and and and and and and and and and	er care



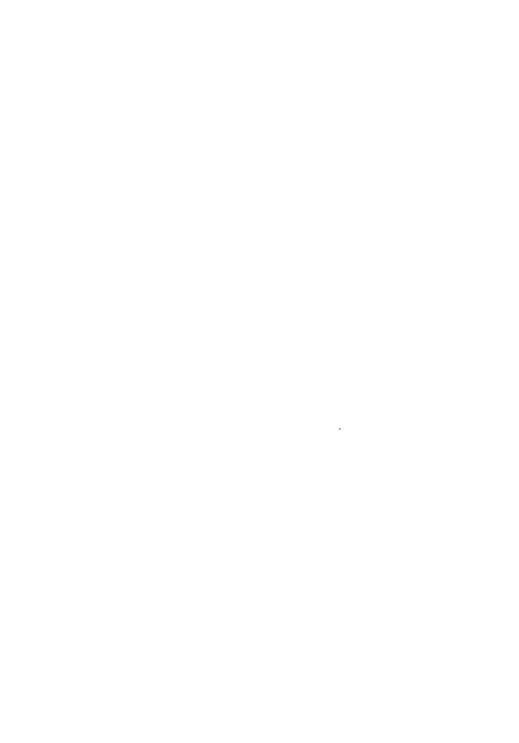
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	Phase II: Analysis and Reco Structure	mmendations \	
	Location of Sample	Removed By	
	Date Removed	Removed By	
	IN-DEPTH MICROSCOPIC/CHEMIC	AL ANALYSIS	
	Purpose of Phase II Analysi	s	
	No. of Lavers to be Studied	#1234	
	keason for Laver Selection:		
	glassiness, ropiness, ect.)	aver to be Matched: (relative	tninness, thickness
		•	
	MEDTIM ANALYSTS. / S		
	MEDION ANALISIS: (Separate	paint/finishlayer from strati	.grapny, ii necessarv.)
	Possible medium	Chemical	Reaction
	0il Latex	W/ DMF	
	Whitewash/calcimine	#2 BMF	
	Waterbased/distemper	# 7 WATER PAR 110	Saluble
	Varnish		
	Shellac	HIES DME	
	PIGMENT ANALYSIS: (Separat	e paint/finish layer from str	rationaphy of
	necessa		deigraph), 11
	Flourescence under near ult	craviolet: yesno, Colo	
	Probable pigment associated	with flourescence:	
12 Prussian	Flo HN33 - No in low 4 No. 3	24 - U	
д	Possible Pigment Type	Spot Test	Reaction
	# 1 /e a J	#F 70#	Long Deek (E.
	fy Tronowid.	121614177	red color
	# 3 copies / chioning		- mconci
	PIGMENT AND MEDIUM TYPE:	wallpaper	
	Probable pigment(s): Probable medium:		
	TODADIE MEGIUM:		
	COLOR: (Match sample to col	lor standards; place under UV rate.)	light for bleaching
	Butens paint color	Sherwin-Williams	
	RECOMMENDATIONS		
	Color:		
	raint lybe:		
	DOCUMENTATION		
	Sample/slide NO: Report prepared - Date:		
	report prepared - Date:	By whom:	



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Location of Comple a	tido rubbe d	lash times melantina	→ ~
Date Kemoved	Removed By	7	
organization races regarding the of	ructure's His	story Which May Pertain	n The
To The Analysis (dateconstructed,	significant	alterations. dates par	inted)
DATA: Microscopic Analysis			
CODES -Finish (F)	Reaction o	f Sodium Sulfide	· (Na ₂ S)
Primer (P)		Hydrochloric Acid	(HCI)
Glaze (G)		Dimethylformamide	(DMF)
Varnish (V)		Methylene Chloride	(CH2CL
Shellac (S)		Water	(H ₂ 6) 4
Wall paper (W)		Alcohol	(OĦ)
Fracture ()		Turentine	(TURP)
Dirt Laver (-)		Near UV Light	(UV)
n			
Note layers of decorative painting	g, if any: (g	raining, marbleizing,	polychromy
ect.)			
<i>a</i>		a	
Chromochronology Comment	S -	Chromochronology Co	mments
Substrate: 5tuces			
1. orange paint layer DMF	- 10	•	
2.		•	
3		•	
<u></u>		·	
5		·	
6		•	
7			
8	23	·	
9			
10			
11.) •	
12.		7.	
13.		3	
15	3(9.	
15).	
Summary:			
Jummai j .			



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cation of Sample		
te Removed	Removed By	
-DEPTH MICROSCOPIC/CHEMICA	U. ANALYSIS	
-DEFTH MICROSCOTIC/ CHETICA	ID MINDIOLO	
rpose of Phase II Analysis	s	
of Layers to be Studied		
eason for Layer Selection:	aver to be Matched: (relati	ve thinness, thickness
lsual Characteristics of La Lassiness, ropiness, ect.)		ve Emilione, emilion
assiness, ropiness, ect./	•	
EDIUM ANALYSIS: (Separate	paint/finishlayer from stra	tigraphy, if necessary.
	Chemical	Reaction
ossible medium Oil		
Latex		
Whitewash/calcimine		
haterbased/distemper		
Varnish		
Shellac		
Probable pigment associated	traviolet: yes no C d with flourescence: Spot Test	Reaction
10 a.V	/\c2	
I F G C Z		N (C
19 Act	de pirate	N/C
in the	de notate	N (C
- Crement		
PIGMENT AND MEDIUM TYPE:	1, 0 - 2 - 10	
PIGMENT AND MEDIUM TYPE:		
PIGMENT AND MEDIUM TYPE:	enri-war may be h	
PICMENT AND MEDIUM TYPE: Probable pigment(s):*	mrusia/may ce is -	relowed write firent
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	plor standards; place under	UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	plor standards; place under	UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s): Probable medium: COLOR: (Match sample to copurposes if approgramme approgramme) Butens paint color	olor standards; place under	UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	on reason / may ce is a solution of the standards; place under prate.) Sherwin-Willi	UV light for bleaching
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	olor standards; place under prate.) Sherwin-Willi	UV light for bleacning
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	plor standards; place under	UV light for bleacning
PIGMENT AND MEDIUM TYPE: Frobable pigment(s):, N.t Frobable medium: COLOR: (Match sample to cc purposes if appro; Butens paint color RECOMMENDATIONS Color: Paint Type:	olor standards; place under prate.) Sherwin-Willi	UV light for bleacning
PIGMENT AND MEDIUM TYPE: Probable pigment(s):	on (may ce is may ce is more place under prate.) Sherwin-Willi	UV light for bleacning



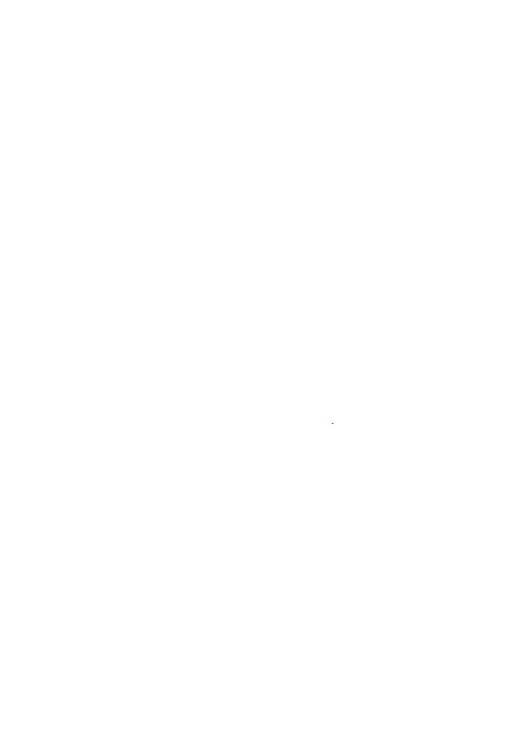
TA: Microscopic Analysis DES -Finish (F) Reaction of Sodium Sulfide (Na.S Primer (P) Hydrocnioric Acid (MT) Glaze (G) Dimethylformamide (MT) Varnish (V) Methylene Chloride (CH, C MT) Shellac (S) Water (H) Wall paper (W) Alcohol (OR)		Removed By ucture's Hist	orv Which May Pertain	The
DES -Finish (F) Reaction of Sodium Sulfide (Na.S Primer (P) Hydrochloric Acid (HC) Glaze (G) Dimethylformanide (DMF) Warnsh (V) Methylene Chloride (HAC) (Shellac (S) Alcohol (OR) (Turentine (TUR) Dirt Layer (-) Near UV Light (UV) The content of decorative painting, if any: (graining, marbleizing, polychrott). Chromochronology Comments (Chromochronology Comments (UV) (UV) (UV) (UV) (UV) (UV) (UV) (UV)	The Analysis (dateconstructed,	significant a	lterations, dates pai	nted)
DES -Finish (F) Reaction of Sodium Sulfide (Na.S Primer (P) Hydrochloric Acid (HC) Glaze (G) Dimethylformanide (DMF) Warnish (V) Methylene Chloride (HAC) (HAC) (Mall paper (W) Alcohol (OR) (OR) (Dirt Layer (-) Near UV Light (UV) Sheliac (S) Water (UV) (OR) (OR) (OR) (OR) (OR) (OR) (OR) (OR				
DES -Finish (F) Reaction of Sodium Sulfide (Na.S Primer (P) Hydrochloric Acid (HCT) Glaze (G) Dimethylformanide (DMF) (Maximum (M				
DES -Finish (F) Reaction of Sodium Sulfide (Na.S Primer (P) Hydrochloric Acid (HCT) Glaze (G) Dimethylformanide (DMF) (Maximum (M				
Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Glaze (G) Primer (P) Fraction (CHAC Shellac (S) Water (Holoride Water (Holoride Water (Holoride Water (Holoride Water (UR) Fracture (TA: Microscopic Analysis			
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Chromochronology Comments 16. 17. 19. 20. 21. 22. 23. 24. 20. 24. 20. 21. 22. 23. 24. 29. 24. 29.		Reaction of		
Varnish (Y) Shellac (S) Water (H.O) Water (OR) Water (H.O) Water (UR) Alcohol (OR) Fracture () Dirt Layer (-) Chromochronology Comments 20 21 22 23 23 24 26 27 28 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20				DMF)
Shellac (S) Water (H,O)				(CH ₂ C
Wall paper (W) Fracture () Dirt Layer (-) Turentine Turentine (UV) te layers of decorative painting, if any: (graining, marbleizing, polychr t.). Chromochronology Chromochronology Comments Chromochronology Comments Chromochronology Comments 16. 17. 19. 19. 20. 21. 22. 23. 24. 00. 25. 1. 26. 27. 3. 28. 4. 29.				(H ₂ 0)
Fracture () Dirt Layer (-) Near UV Light (UV) The layers of decorative painting, if any: (graining, marbleizing, polychrit.). Chromochronology Comments Chromochronology Comments Chromochronology Comments Chromochronology Comments In the contraction of				(OH)
Dirt Layer (-) Near UV Light (UV) Chromochronology Comments Chromochronology Comments Chromochronology Comments Obstrate: Your 16. In 19.		Turentine	(TURF	
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	- white	20 21 22 23 24 24 25 26 27		
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Phase II: Analysis and Recor	
Location of Sample	
Date Removeq	Removed By
IN-DEPTH MICROSCOPIC/CHEMIC	
Purpose of Phase II Analysi	s
No. of Lavers to be Studied Reason for Laver Selection: Visual Characteristics of L glassiness, ropiness. ect.)	
MEDIUM ANALYSIS: (Separate	paint/finishlayer from stratigraphy, if necessary.)
Possible medium Oil Latex Whitewash/calcimine Waterbased/distemper	Chemical Reaction Challe 4+b laner of tene
Varnish Shellac	
Flourescence under near ul Probable pigment associate	traviolet: yesno/, Color d with flourescence:
	thre of whiting and lead white
	olor standards; place under UV light for bleaching
Butens paint color	Sherwin-Williams
RECOMMENDATIONS	
DOCUMENTATION Sample/slide NO: 5-16 Report prepared - Date:	0 -m
Report prepared - Date:	By Whom:



<u>geBeud≠∠ 830</u> Aoc.lund Mortar Gata Sheet



MORTAR ANALYS	IS: DATA SHEET	
Name	Sample No	Ro-m
Date	Below woon 4	venelen
	e (color, te	xture, hardness,
Release "	<u> </u>	- N
		to forter
<u>Mortar Analysis</u> :		
Original weight of powdered sam	ple (W _l) =	25.16 m
Weight of filter paper (W_2) =		5,87.55 = 1.42
Weight of filter paper + dry fi	.nes (W ₃) =	9074
Weight of dry fines $(W_3 - W_2)$:	1.65-
Weight of dry sand $(W_4) =$		14 77
% of sand $((W_4/W_1) \times 100) =$		<u> </u>
% of fines $((W_3 - W_2)/W_1 \times 100)$)) =	<u> </u>
% of dissolved binder =		
Observations: dissolution of b	inder, color of	
Characterization of Sand:		14.77
Microscopic Examination	% Finer than	4.75 mm
		2.36 mm
		300 um
		150 um

MORTAR ANALY	SIS: DATA SHEET
Name	Sample No. 2-Ro-m
Date	Origin of sample Roylelane
Visual description of samp inclusions, etc.): ## Brown	the (color, texture, hardness, while, soft very
Mortar Analysis:	
Original weight of powdered sa	mple $(W_1) = 25.10$
Weight of filter paper (W_2) =	5 94 +156 = - 40
Weight of filter paper + dry f	ines (W ₃) = <u>966</u>
Weight of dry fines $(W_3 - W_2)$	2.26
Weight of dry sand (W_4) =	13 43
% of sand $((W_4/W_1) \times 100) =$	536,4
% of fines $((W_3 - W_2)/W_1 \times 10^{-3})$	0) =
% of dissolved binder =	7,50
Observations: dissolution of b	binder, color of liquid:
	· 07
Characterization of Sand:	3.45
Microscopic Examination	1.18 mm 7



MORTAR ANALYSIS: DATA SHEET

Date O	rigin of sample Rock land
Visual description of sample inclusions, etc.): While Brown was to be plant, hayer and improved	(color, texture, hardness
Mortar Analysis:	
Original weight of powdered sample	$(W_1) = 25.10$
Weight of filter paper (W_2) =	5.75 + 57.6.3
Weight of filter paper + dry fines	(W ₃) = \frac{\fint}{\frac{\fint}{\fint}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\fint}}}}}}{\frac{\fir}}}}}}}}}{\frac{\fra
Weight of dry fines $(W_3 - W_2) =$	-21684
Weight of dry sand (W_4) =	<u>6.60 5</u>
• of sand $((W_4/W_1) \times 100) =$	26.72
• of fines $((W_3 - W_2)/W_1 \times 100)$	_10.6790
% of dissolved binder =	<u>(3.839</u> c
Observations: dissolution of binde	er, color of liquid:
Trues in the Control	471.0 1.1.
Characterization of Sand:	6.62 Win
Microscopic Examination	Finer than 4.75 mm
	1.18 mm 1.2
	300 um 1- 1
	150 um 2 75 um
	53 um : 38 um :
	J 0 0



MORIAR ANALISIS		
	Sample No. 4-120-m	1
Date	Origin of sample Rockland Intro 3rd Cloor from belows	1
Vicual description of sample	noe(. \	
	(color, texture, hard	ines
	solum may be gypso	_
- 00 8	planter 1	
Mortar Analysis :	26 - 6	
Original weight of powdered samp	-	_
Weight of filter paper (W ₂) =	560 + .57	
Weight of filter paper + dry fine	$= 6 (W_3) = \frac{7.00 c}{}$	-
Weight of dry fines $(W_3 - W_2) =$	83 e-	-
Weight of dry sand $(W_4) =$	7.95	_
% of sand ((W ₄ /W ₁) x 100) =	31.75	
% of fines ((W ₃ - W ₂)/W ₁ x 100)	3319	<u>s</u>
% of dissolved binder =	64.60	70
Observations: dissolution of bin	der, color of liquid:	
		_
Characterization of Sand:	7.45	
	/1 PT 1	
Microscopic Examination	* Finer than 4.75 mm	_
	1.18 mm 600 um	
	300 um - 2	
	150 um	_ !
	53 um	

406

) (

MORTAR ANALYSI	S: DATA SHEET	
Name	Sample No. 6-Re	- m
Date	Origin of sample	ie dun stucco
Visual description of sample inclusions, etc.): Brown ruby	(color, tex	ture, hardness,
	onfragents	
	Alma que	·
Mortar Analysis:		
Original weight of powdered samp	le (W ₁) =	25.06
Weight of filter paper (W_2) =		5.72+.54-626
Weight of filter paper + dry fir	ies (W ₃) =	5.015
Weight of dry fines $(W_3 - W_2) =$		1,75
Weight of dry sand (W ₄) =		17.22.0
% of sand $((W_4/W_1) \times 100) =$		68713
% of fines $((W_3 - W_2)/W_1 \times 100)$) =	6.58 30
% of dissolved binder =		<u> </u>
Observations: dissolution of bi	nder, color of l	liquid:
	Five	m
		5. 17.20 p
Characterization of Sand:		(comment sold; m)
Microscopic Examination	% Finer than	4.75 mm //4 2.36 mm //.2
		1.18 mm 5 16.779c
		300 um 1 10 3 %
		75 um \
		38 um

	j	



s.		





Anne & Jerome Fisher

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University of Pennsylvania

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